

# Railway Age

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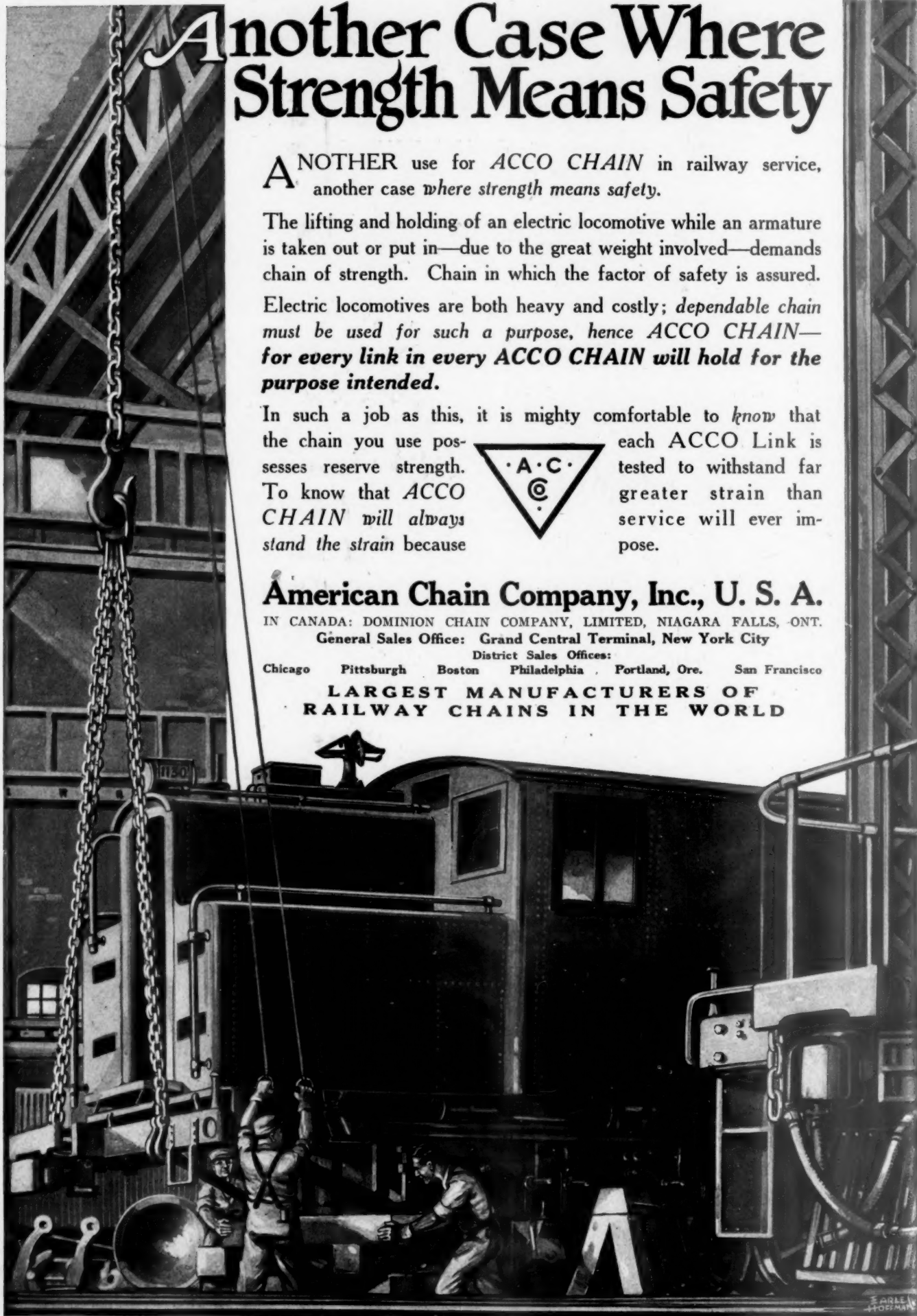
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# EDITORIAL

## Railway Age

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Many mechanical men, who would not be willing to confine their domestic purchases to a single firm, particularly if they thought that the prices charged were out of line, do not hesitate in submitting requisitions for railway supplies to specify materials that can only be obtained from a single manufacturer.

### Specifying Material Purchases

Many specialties are essential and must be specified. The purchase of a machine tool designed for a particular service or a certain brand of tool steel to which the shop has become accustomed presents an unusual problem, but there is no reason why the purchase of by far the greater bulk of railway supplies cannot be subject to a specification. It should be the policy of the mechanical and engineering departments to establish satisfactory standards and to incorporate these standards into specifications covering as large a number of items as possible. This at once enables the purchasing agent to buy to the best advantage and affords the mechanical or engineering department an opportunity to protect the railroad against inferior materials. It is the best business policy and the only basis on which these departments can genuinely cooperate with the service of supply. There is still some doubt as to whether certain materials can be adequately defined by specifications. The Railroad Administration purchased large quantities of paint by specification and it will be interesting to determine the results obtained on the standard equipment. In any event, a sincere effort should be made to extend the application of specifications to an increasing variety of railway supplies.

It is unfortunate that any railroad official responsible for the purchase of machinery or materials should disregard any

### Is First Cost the Only Consideration?

consideration as to the ultimate expense and order material upon the basis of its first cost. This should never be the sole consideration when it is only a small proportion of subsequent operating and maintenance costs. Does it pay to save five hundred dollars on the first cost of any item if it will cost one thousand dollars more to keep it in operation annually? The principle applies with particular force to the purchase of high speed steel. Most satisfactory results can always be obtained with the continued use of a certain brand of high speed steel. The shop becomes acquainted with the characteristics of this particular brand, it knows how to treat this steel in order to get the best results. The purchase of another brand, even if as good, will cause confusion and the mistreatment of a certain portion of the new steel. The purchase of a cheaper steel would unquestionably handicap the work of many men whose daily wages amount to many times the value of the special steel. It is recognized that wherever possible purchasing agents must be allowed such latitude in the purchase of materials as will enable them to buy to the best advantage. They cannot be required to confine their orders to a single manufacturer and be expected to protect their company against excessive charges. But the purchase of high speed steel presents an unusual case; often the most expensive article is by far the most economical in the long run. Purchasing agents must recognize this fact and respect the

judgment of tool makers and shop foremen or they will inevitably increase shop costs and may do much harm. There is an old adage to the effect that if you expect a workman to do good work, you must see that he has good tools.

There is apparently nothing wrong with our export trade in locomotives. According to the official figures shown in the

### Record Locomotive Exports

Monthly Summary of Foreign Commerce of the United States, the exports of steam locomotives for this year are going to break all records. The exports in July, 1920, numbered 134 valued at \$4,742,306 as compared with 17 valued at \$322,775 in July, 1919. In the first seven months of 1920 the locomotives exported numbered 1,025 valued at \$32,549,343, as compared with 446 valued at \$15,426,439 in the same period of 1919, or 690 valued at \$15,426,439 in the first seven months of 1918. Our best previous record was reached in the fiscal year ended June 30, 1918, in which period we exported 1,457 locomotives valued at \$35,889,632. If the exports continue during the remainder of 1920 in the same proportion as for the first seven months, we should not come far from doubling the 1918 record.

The recent opening of American universities for the fall semester has disclosed some interesting facts on attendance.

### Will the Railroads Get Their Share?

One eastern school reports an enrollment of 30,000 students. Western school registrations are double those of pre-war days. Abnormal conditions such as the unusual prosperity of the times can be but partly responsible for this enormous growth of our colleges, and even with the advent of hard times, it is clear that the college trained man will be available in much larger numbers than in the past. This places in a new light the employment of the university graduate by the railroads. There were formerly many, and no doubt there still are a few, who question the value of higher education, but it is unthinkable that these many thousands of young men are spending four of the best years of their lives and many thousands of dollars in a vain undertaking. Higher education is becoming increasingly popular because it is paying dividends to most of the men who have made the investment and also to the firms that employ them. Whether the railroads are to participate in the benefits of this system to the fullest extent will depend on what they are willing to offer. This may embody many things, but the foremost of these is recognition—not in the sense of preferment, but through a system of organization that provides such training of these specially educated men as will insure the assignment of the man to the grade and character of position to which he is best suited, and recognition of demonstrated merit. To a certain extent the worth of the technical man has been recognized in the purely technical departments, but this has been more because of his admitted ability to do certain technical work than because it was felt that he had the stuff in him of which the ablest officers are made. If

the university man is to be employed for a usefulness beyond his purely technical value, it must be admitted that he must undergo a period of practical training, but a man who has sacrificed his earning capacity and perhaps gone into debt for his education should not be expected to submerge himself in a group of eighth grade or high school graduates to wait until some act of providence affords the opportunity to demonstrate his worth. The form of society in which we live is becoming more and more complex, and it is not safe to rely solely on the survival of the fittest to provide leadership.

After the extended discussion of the merits of the standardization of railway equipment in the early days of federal

#### Standardization Resurrected Again

control, and its abandonment after trial with cars and locomotives, one is surprised to note the plea for the standardization of maintenance equipment and practices, published in another column. There is much of merit in Mr. Morse's contention that there are certain wastes incident to the lack of standardization and it will be admitted that there are many details such as the drilling of rails which could be standardized to advantage. However, the recommendation that the Interstate Commerce Commission recognize the American Railroad Association as the authority through which uniformity of practice shall be established, and that this association be given mandatory power to enforce its standards is so drastic in its effect as to warrant serious reflection. To give this association or any association power to specify the standards of construction and of maintenance for a road is dangerous. It is not necessary to repeat the arguments against standardization which were set forth in these columns a couple of years ago. Suffice it to say that standardization may easily be carried so far as to arrest development and the exercise of initiative at a time when individual initiative is needed by the railways more than ever before. It is admitted that a diversity of standards tends to increase manufacturing costs but the remedy—standardization—when put into general application leads to even greater disadvantages and is worse than the disease. There are undoubtedly parts of the railroad plant standardization of which would be desirable but the question of standardization of each part should be treated upon its individual merits.

It is imperative that fuel purchases be thoroughly inspected to insure conformity with the highest practical standards.

#### The Eighth Fuel Commandment: Inspection

A reduction in the percentage of impurities, or ash, may be taken as the objective of everyday inspection although the percentage of fine coal, or slack, is an important consideration. Suppose you contract for one hundred thousand tons of coal which, having an average ash content of 12 per cent, would meet your requirements over a certain period. If the average percentage of impurities were subsequently permitted to increase one per cent it would then be necessary to buy over 2,000 tons more coal for the same period involving at least 40 additional empty and loaded car movements. Would it not be better to strive for a lower percentage of impurities by vigorous inspection than to permit deterioration in quality through lax inspection at the mines? Experienced inspectors can be of the greatest assistance to operators towards improving the product of their mines. Their efforts should be constructive and not purely critical. This work is exceedingly trying in the face of a coal shortage and the rejection of poor coal will not always solve the problem. A car recently rejected by

the representative of an important eastern carrier moved forward as a commercial shipment and on account of a fuel shortage was later confiscated by the same railroad at a price which far exceeded the original figure. Purchasing agents are not inclined to co-operate heartily with the rigid inspection of fuel because it increases the difficulty of obtaining an adequate supply. But rigorous fuel inspection is so fundamental to fuel efficiency that it must obviously be classed as one of the ten fuel commandments.

That railway men are keenly alive to the necessity of rendering the maximum transportation service is indicated by the

#### Contest on Car Loading

fact that 42 contributions were received in the contest on "Means of Increasing the Average Miles Per Car Per Day" which closed on September 30. These papers came from men in all ranks of railway service, including general managers, division and terminal superintendents, agents, yard clerks, etc. The papers are now in the hands of the judges and will be published in early issues of the *Railway Age*. Second in importance only to the problem of expediting the movement of cars as a means of increasing the transportation facilities of the country is that of increasing the average load per car. The Association of Railway Executives has set before the roads a goal of an average of 30 tons per car. The problem of securing greater mileage from cars is largely although not entirely one for railway men to solve. Increasing the loading of cars depends in greater measure upon the co-operation of shippers and means must be devised to enlist their full support. Because of the importance of this subject to the transportation industry, we announce a contest on Means of Increasing the Average Loading of Cars, to which we invite contributions by railway officers and shippers, thus affording an open form for the frank discussion of means of solving this problem of such great concern to both. Contributions to this contest should preferably not exceed 1,200 words in length, and should be confined to the presentation of practical means within the power of the railways and the shippers to put into effect. To stimulate interest in this subject we will award prizes of \$50 and \$35, respectively, for the two best papers received and will pay our regular space rates for others accepted and published. All articles should be sent to the editor of the *Railway Age*, 608 south Dearborn street, Chicago, and must be mailed before November 10 to be considered by the judges.

In speaking of the relationship of the railroads to the public, it has been long recognized that it is the shippers

#### Impartial Treatment of Shippers

who wield the most potent influence over the destinies of the carriers. Thus the drastic railway legislation of the last two decades had its inception when special concessions to favored patrons served to crystallize antagonism among the smaller shippers who suffered from these objectionable practices. By the same token there is no question but that the Esch-Cummins law became a reality only because the great mass of shippers were thoroughly convinced that improved service could come only through a return to private control under terms which would enable the roads to improve and extend their facilities. It is patent, therefore, that the future of the railroads depends very largely on the esteem in which they are held by their patrons and one of the first principles to this end is fair dealing. We are not in a position to say whether these were the considerations which prompted the Railway Corporate Engineers' Association to recommend uniform practice in the construction and maintenance of in-



dusty tracks, but this is surely a step in the direction of that impartial treatment of the shippers which is so necessary to obtain and retain good-will. This proposal implies no departure from existing practices; rather it means the continued observance by the individual roads of General Order No. 15 and Supplement No 1. thereto, promulgated by the United States Railroad Administration, prescribing the division of the expense involved in the construction and maintenance of the industry tracks. This would seem to embody one of those practices initiated by the Railroad Administration which it would be well for the roads to perpetuate. There are cases where strict compliance with an established rule is better than the exercise of the most ingenious initiative and it should be clear that this is one of them.

## The Significance of Recent Car Loading Statistics

THE STATISTICS regarding the number of carloads of freight moved by the railways within recent weeks raise some interesting questions.

One of these is as to the effects produced by the advances in freight rates. Not a few persons contended that such large advances in rates as went into effect in the last week in August impose a burden on commerce that would reduce the freight moved. In the week ended August 28 the number of car loads shipped was 986,064. This was the highest record that had been reached in the present year, and a good many comments were made implying that the shippers had been hurrying the forwarding of freight to forestall the advance in rates. There was a decline in the number of loads moved during the next two weeks, which seemed to give support to this view. But in the last week for which statistics are available, that week ending September 18, the number of carloads moved was 983,913, which was the largest it had been in any week of the present year, excepting that ended August 28. This certainly does not indicate that the advance in rates has had any tendency to reduce the amount of freight shipped.

Another interesting question is as to whether the movement of freight thus far indicates any recession in general business activity. It is well known that there has been a decline of activity in some industries, and there is much talk to the effect that a slump in production and commerce generally has been occurring. The statistics regarding carloadings, however, show that in the last four weeks for which we have records the freight movement continued to be practically as heavy as it ever was at that time of the year. The year 1918 was one of tremendous industrial activity owing to the war; and in the late summer and early fall of the year 1919 there was a great revival of business activity and the freight traffic of the railways became as large as it ever had been at that time of the year.

How does the amount of freight which recently has been moved compare with the amounts moved during the corresponding weeks of 1918 and 1919? In the four weeks ending with September 18, 1920, the total number of cars of freight loaded was 3,788,763. This was only 9,244 cars less than in the corresponding weeks of 1919. The number of cars moved in these weeks of 1920 was only 13,455 less than in 1918. The differences between the amounts of freight moved in 1918, 1919 and 1920 were relatively infinitesimal. The figures indicate that the productive and commercial activity of the country on the whole was as great as in either of the preceding two years, although there undoubtedly was less business and reduced prosperity in particular industries and particular territories.

Another most interesting question which these statistics

raise is in respect to the maximum capacity of the railways with their present facilities. In the years 1918 and 1919 under government control and in the year 1920 under private control the managements have put forth the utmost efforts to move the greatest possible business with the available facilities. In each of these years the maximum movement of freight attained in a week has been almost the same, namely, about one million carloads. Some individual railroads made better showings in some of these years, and some in others, depending on local conditions, on the distribution of the total supply of cars, etc., but the maximum result which the railways as a whole have been able to attain has been in each of these years about the same. There has been considerable difference of opinion among students of railway matters as to whether it is practicable, even under the most favorable conditions and the most skilful operation, for the railways, with their existing facilities, to move a substantially greater freight traffic than they have in the past, and certainly the results gained up to the present time indicate that one million carloads a week is practically the maximum they can handle. Whether this is the case should be pretty definitely determined within the next few weeks. Should the traffic offered continue heavy and weather conditions favorable, and the railways still fail to move substantially more than one million carloads a week, the fact that this is practically the maximum number of loads they can move with existing facilities and that further increases in the amount of transportation rendered will have to wait upon increases in facilities, will be pretty conclusively demonstrated.

In this connection, it is pertinent to call attention to the significance of the fact that no little satisfaction is felt by railway officers and business men when the amount of freight moved in any given part of the year exceeds the amount handled in the corresponding parts of previous years. Until within the last few years it was not regarded as an unusual achievement for the railways to handle more freight in any one year than they have handled in previous years. On the contrary, their development formerly went on in proportion to the increase in the productive capacity of the country and everybody expected that in any year when general business was active the amount of freight handled would largely exceed that of any previous year.

## Equipment Orders in the First Nine Months of 1920

THE CLASS I RAILROADS of the United States ordered in the first nine months of 1920, 1,403 locomotives, 40,254 freight cars and 814 passenger cars. Canadian roads ordered 154 locomotives, 10,773 freight cars and 174 passenger cars. The total orders for freight cars placed in the United States amounted to 57,172; in addition to the 40,254 placed by Class I roads, there were also 256 cars ordered by other roads and 16,662 by private car lines and industrials.

Interesting figures may be developed from a detailed analysis of the orders for equipment reported in the Equipment and Supplies column of issues of the *Railway Age* from January 1 to the last issue in September. The figures themselves as given below show that the railroads are not ordering cars anywhere near in proportion to their needs in anything like the manner they should. Locomotives are being contracted for on a proportionately better basis, but if the rate of buying for the rest of the year continues on the same basis as for the first nine months, it is evident that the totals of locomotive orders for the year will not be relatively large.

Figures concerning the *production* of freight and passenger

cars up to the end of July were the subject of an editorial on page 511 of the *Railway Age* of September 24, in which the attempt was made to ascertain the reasons for the low production of cars in the first seven months of this year. The last sentence in the editorial was "No data could show more conclusively than those given above (referring to the figures of production) that at present almost no progress is being made in increasing facilities." The interest created by this rather severe pronouncement has been so great as to lead us to make a detailed analysis of the orders for equipment reported so far this year. This has been done with a view to seeing if the figures for orders would lead to a conclusion relative to the progress that has been made in rehabilitating the railway equipment of the country different from that derived from the figures of production. It is apparent that that they do not. While it is true that the orders for equipment have exceeded the production of equipment, it is also evident that the orders placed have run on a scale very much below that which is going to prove necessary if the railways are to have sufficient cars and locomotives for the next two or three years.

Before introducing the figures themselves, it is wise to utter a word of caution as to their use. They are not strictly comparable with the figures given in the editorial in the issue of September 24 mentioned above. The figures given herewith cover all orders reported in the issues of the *Railway Age* from January to September. Those given in the former editorial showed the production of the 23 car builders reporting to the Railway Car Manufacturers' Association. They did not include cars built in railway shops. The figures given herewith are, however, comparable with certain figures relative to orders which were given in an editorial in the issue of September 10, with the exception that the figures below are shown more nearly complete and have been corrected in instances in the light of later information.

Table I shows the orders for locomotives reported in the issues of the *Railway Age* from January 1 to the last issue of September. In this period there were reported in the *Railway Age* orders for 1,403 locomotives for Class I railroads, 49 for other roads and 56 for industrials—a total of domestic orders of 1,508. There were also reported 669 locomotives ordered for export. Canadian roads contracted for 154 locomotives. The bulk of the domestic orders was placed in February, March, April and May. Business fell off to ridiculously low figures in the summer months, but September showed a considerable compensating advance. The total of 1,508 locomotives for the nine months is not exceptionally low. It shows that some roads have ordered locomotives in good quantity. There is no indication that the roads in general have placed the quantity of orders that they are going to find it necessary to place before they have recovered the ground lost during the war.

TABLE I—LOCOMOTIVES ORDERED IN 1920

Issue	UNITED STATES					CANADA	
	Class I roads	Other roads	Domestic lines or industrials	Total Dom.	U. S. export	Dom.	Export
January .....	19	9	4	32	206	..	7
February .....	283	6	4	293	86	85	..
March .....	201	14	13	228	89	32	..
April .....	414	17	2	433	108	28	..
May .....	188	2	7	197	8	3	..
June .....	64	1	..	65	40	4	..
Total, first half year	1,169	49	30	1,248	537	152	7
July .....	86	..	9	95	77	2	..
August .....	11	..	3	14	24	..	..
September .....	137	..	14	151	31	..	..
Total, nine months..	1,403	49	56	1,508	669	154	7

Table II gives the analysis of freight car orders. In the nine months period the Class I railroads were reported as having placed orders for 40,254 freight cars. There were

256 ordered by other roads and 16,662 by car lines and industrials—a total of 57,172 cars ordered for domestic service in the United States. There were 10,773 cars ordered by Canadian roads. Export orders reported totaled 4,527, including 80 placed in Canada. It is generally accepted that 100,000 cars are needed yearly to take care of retirements alone. The orders will have to average 20,000 a month for the rest of the year to make that total for the Class I roads. The 16,662 cars ordered by car lines and industrials also merit attention. The tank car orders alone in 1919 totaled 15,295.

TABLE II—FREIGHT CARS ORDERED IN 1920

Issue	UNITED STATES				CANADA	
	Class I roads	Other roads	Domestic lines or industrials	Total Dom.	U. S. export	Dom. Export
January .....	1,300	6	914	2,220	1,000	.. 80
February .....	5,992	..	400	6,392	516	.. ..
March .....	3,069	100	500	3,669	625	6,567 ..
April .....	18,018	..	1,304	19,322	350	4,206 ..
May .....	5,010	100	2,292	7,402	207	.. ..
June .....	1,000	..	2,757	3,757	375	.. ..
Total, first half year	34,389	206	8,167	42,762	3,073	10,773 80
July .....	2,850	..	2,618	5,468	66	.. ..
August .....	1,000	50	5,106	6,156	900	.. ..
September .....	2,015	..	771	2,786	408	.. ..
Total, nine months..	40,254	256	16,662	57,172	4,447	10,773 80

Table III shows that the passenger car orders placed by Class I roads totaled 814, for Canadian roads 174, and for export 80. This total of 814 for the nine months' period represents a great advance over the total of orders placed by United States railroads in 1919, of 292, or of the United States and Canada in 1918, of 131. It is, however, far below the average of preceding years when the roads of the United States and Canada were accustomed to order 2,000 or more cars yearly, as for example, 2,544 in 1916.

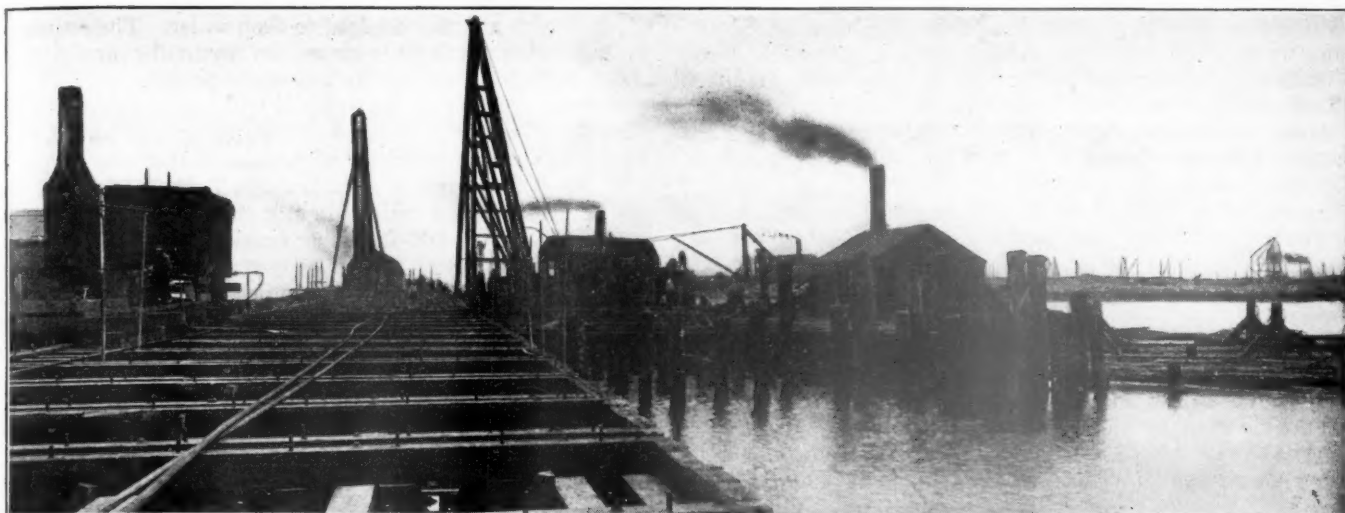
TABLE III—PASSENGER CARS ORDERED IN 1920

Issue	UNITED STATES			CANADA	
	Class I roads	Total Dom.	U. S. Export	Dom.	Export
January .....	107	107	..	..	..
February .....	35	35	..	..	..
March .....	148	148	..	102	..
April .....	328	328	50	..	..
May .....	57	57	..	72	..
June .....	..	..	..	..	..
Total first half year.....	675	675	50	174	..
July .....	60	60	10	..	..
August .....	..	..	..	..	..
September .....	79	79	..	..	..
Total nine months.....	814	814	60	174	..

The statement was made in our issue of September 10, in speaking of the orders for cars and locomotives in August, that: "In view of the new conditions under which the railroads are operating, there is every reason to expect that the remaining months of the year will show a considerable improvement over the three summer months." This prophecy, as it might properly be called, was borne out by the September totals. Nevertheless, everything considered, it is apparent that the nine months' figures for orders do not permit a different conclusion from that derived from those of production. The railroads have not made much progress in increasing facilities.

Despite the discouraging nature of the facts above submitted, it is not difficult to feel optimistic over the situation. Conditions are brightening from day to day and we find no reason for changing the opinion so often expressed in these columns that there is considerable business in sight. In the meantime, the problem is up to the operating man and he is showing that he realizes the fact by the progress that is being made in advancing towards the standards of operating efficiency set by the Association of Railway Executives.





Work on First Unit Is Being Pushed Rapidly

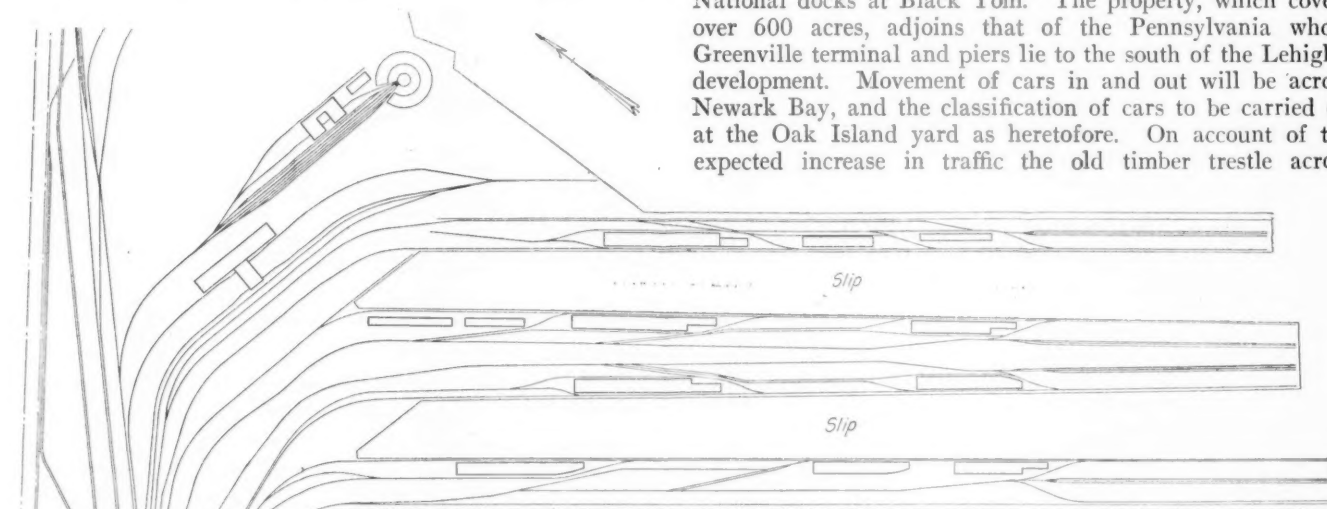
## Lehigh Valley Plans Comprehensive Terminal

Work Begun on First Unit of Deep Water Project Having  
Total Dock Length of Nearly Six Miles

**T**HE LEHIGH VALLEY has recently commenced work on a tidewater terminal development in the Greenville section of Jersey City that, for size and completeness of harbor facilities, will be one of the foremost in the country. The Claremont project, as it is known, will in-

clude storage tracks, an engine terminal, shops, etc., and a large capacity grain elevator.

The new Claremont terminal is located on the tidewater flats off Jersey City and lies approximately midway between the old ore piers of the Lehigh at Constable Hook and the National docks at Black Tom. The property, which covers over 600 acres, adjoins that of the Pennsylvania whose Greenville terminal and piers lie to the south of the Lehigh's development. Movement of cars in and out will be across Newark Bay, and the classification of cars to be carried on at the Oak Island yard as heretofore. On account of the expected increase in traffic the old timber trestle across



Outline Plan of the Complete Development

clude three large piers, each approximately 7,000 ft. long with two slips 450 ft. wide and deep enough to accommodate ships drawing up to 35 ft. of water. The equipment and other facilities will include a complete system of ore unloaders, coal dumpers, double deck freight houses, gantry cranes, narrow

gauge electric locomotives and other miscellaneous modern material handling facilities. The improvements to accompany the pier construction provide for receiving, loading and

Newark Bay, which has been used jointly by the Pennsylvania as an outlet for its Greenville yards, and by the Lehigh Valley as an outlet for its piers at Constable Hook, Black Tom and at the Tidewater Basin at Jersey City, will be replaced by a new four-track structure. This will be built in conjunction with the Pennsylvania.

The project as now planned is the result of the growing needs of the Lehigh Valley for larger and more efficient port and terminal facilities which will permit the handling of coal, ore and freight direct from boat to car or car to boat and the berthing of more vessels of increased size and draught than is now possible. The present port facilities of the Lehigh Valley concerned in this work include the coal piers

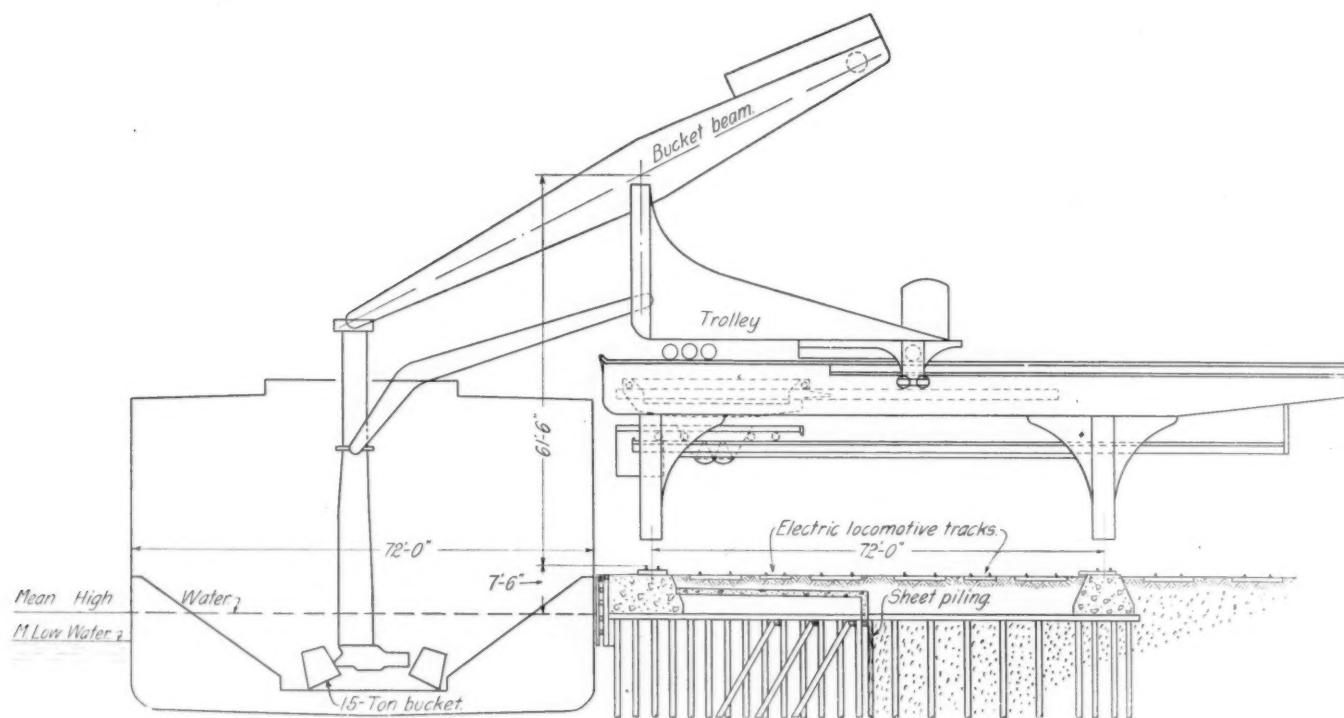
at Perth Amboy, N. J., with discharge space for vessels drawing up to 20 ft. of water, the ore piers at Constable Hook handling two ships of 35 ft. draught, the piers at Black Tom which are used chiefly for lighterage work of export and import bulk freight delivered in open top cars and the docks at the Tidewater Basin at Jersey City. The capacity of the latter terminal is now limited to 4 vessels with a maximum draught of 23 ft. and any further development at this point is restricted by the hard rock which forms the bed of the river at this point. The growth of import and export traffic and the increasing size of vessels in the last eight or ten years have rendered it much more difficult to handle such freight in the most economical manner and was the underlying cause for the present project which in a manner centralizes the export and import traffic and permits of the use of the old piers for their most efficient purpose.

The design of the terminal calls for the construction of three piers, two of which are approximately 400 ft. wide,

ing in a wide channel dredged to deep water. The estimated yardage which will be removed by hydraulic dredging is about 12,000,000 cu. yd. for the entire project.

The construction of the terminal will be carried on in sections of which the work on the first unit is now under way. This consists approximately of the first half of the proposed Pier No. 1 and gives a dock length of about 3,000 ft., the pier extending to a point slightly outside the government bulkhead line. A 700-ft. timber trestle will be continued on out from this point to form a support for a drill track upon which loaded ore cars will be handled. The outer 1,060 ft. of the combined pier and fill construction will be equipped with two 15-ton electric ore unloaders of the bucket and boom type and two 5-ton unloaders of the rope system and grab bucket type. These will span four loading tracks and will have an unloading capacity of a car a minute.

Two vessels 600 ft. in length can be accommodated at this section of the pier, while the remainder of the dock space is



Section Through One of the Proposed Piers and an Ore Unloader

including backfill and the double width center pier 700 ft. wide. The four docks thus formed will have lengths varying from 6,650 ft. for the north pier up to a maximum of 7,800 ft. for the south pier. These piers will be built inshore from the present established bulkhead government line for a distance of about 3,000 ft. as a combination pier and backfill. The remainder of the piers will extend approximately 4,000 ft. out from that line and will be supported entirely on timber piles carrying a concrete deck and fill, all designed for Cooper's E-60 loading.

The backfill will be retained by a line of 8-in. by 12-in. sheet piling carried across the bulkhead line and back to the inshore end at a distance of 40 ft. from the dock line. The necessary fills alongside the north and south docks, the inshore end of the central dock and the area for the storage yards, engine terminals, etc., will be built up from the material dredged from the two slips. In order to furnish ample room for the movement of ships in and out of their berths these slips will be made 450 ft. wide at the inshore end, gradually widening to 550 ft. at the outer end and terminat-

divided into three parts. These include a 720-ft. open dock with four tracks and an open storage space served by a 30-ton traveling gantry with revolving crane which spans all four tracks and a warehouse dock serving a double deck warehouse 800 ft. long and 100 ft. wide. Two boats may be handled at the warehouse and one at the open dock, giving a total berthing capacity of five 500-ft. to 600-ft. vessels at one time.

The 3,000 ft. unit will be constructed in the manner prescribed for the completed pier with a line of sheet piling running lengthwise of the pier 40 ft. from the dock to the end and then across to a stone dyke connecting with the built-up land of the Pennsylvania terminal. The area between the sheet piling, the bulkhead and the adjoining property is now being built up with the material obtained from the dredging of the channel. This will be dredged 300 ft. wide for the length of the dock, tapering to 250 ft. wide at the end and continued out at this width for a distance of nearly 5,000 ft. to deep water. About 3,600,000 cu. yd. of material will have to be removed, of which about 1,000,000 cu. yd. had been removed up to August 1, 1920.



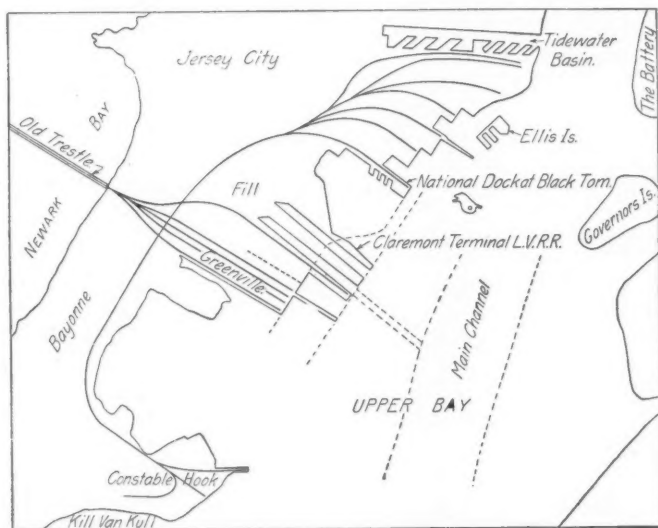
With the main yard of the Lehigh lying on the opposite side of Newark Bay it was necessary to provide considerable yard space on and adjacent to the pier. This consists chiefly of an empty storage yard for the ore dock and a storage yard for the open storage and warehouse docks with capacities of 422 cars and 210 cars, respectively. In addition to this trackage there are three tracks for loaded cars, holding 25 cars each, an advance empty yard with a capacity of 70 cars, three repair tracks, six tracks serving the open storage space and the warehouse and the four tracks served by the ore unloaders.

To facilitate the operation of the ore unloaders two narrow-gage tracks will be laid between each pair of tracks through the advance yard and under the unloaders upon which electric locomotives are operated. Empty cars are shunted into the advance yard, where they are picked up by the narrow-gage electrics and spotted under the unloaders by means of poling arms. These electrics also deliver the

load or unload freight direct from ship to cars or from ship to either floor of the warehouse.

The open storage arrangement consists of four tracks along the dock and two tracks on the shore side separated by a continuation of Linden Avenue. This road will be extended parallel to the warehouse in order that incoming and outgoing drayage may be handled. The four tracks along the dock line will be served by a 30-ton traveling gantry spanning all four tracks and delivering freight direct to cars or the open storage space.

The Claremont terminal project was designed by and is being constructed under the direction of the engineering department of the Lehigh Valley, G. T. Hand, chief engineer, and J. J. McCleece, architect, with W. R. Johnston, terminal engineer, in direct charge of the field work. The dredging and the placing of piling, etc., is being done by company forces. The ore handling equipment will be furnished by the Wellman-Seaver-Morgan Company, Cleveland, Ohio, and the Mead-Morrison Manufacturing Company, East Boston, Mass.



Relation of the Proposed Claremont Terminal to Other Terminals on New York Bay

loaded cars to a steam locomotive operating on the drill track carried by the trestle extension which places them in cuts of 10 cars on the loaded tracks. When a sufficient number have been so placed they are consolidated into a train of about 50 cars for westward movement.

The warehouse facilities for import and export freight will consist of a two-story steel and concrete structure 800 ft. long and 100 ft. wide, having one track extending along the edge of the dock and two tracks along the rear or shore side of the building. A 30-ton traveling gantry with a revolving crane will be installed over the single track and will

## Cost of Railroad Fuel

WASHINGTON, D. C.

THE INCREASE in the cost of coal purchased by railways, public utilities and industries in July, 1920, as compared with the cost in July, 1919, is shown in a compilation made by the Interstate Commerce Commission from reports received from 159 railroads, 123 public utilities and 184 industrial companies. In July, 1920, these railroads purchased 9,627,491 net tons of bituminous contract coal at an average price at the mines of \$3.24 per net ton, as compared with 8,880,021 net tons in July, 1919, at an average cost of \$2.47. They also purchased 1,518,444 tons of spot coal at an average price of \$6.01, as compared with 476,758 tons last July at an average of \$2.40. Public utilities paid an average of \$3.58 for contract coal, as compared with \$2.51 last year, and \$8.36 for spot coal as compared with \$2.51, while industries paid \$4.40 for contract coal and \$8.44 for spot coal, as compared with \$2.13 and \$2.04 last year. For anthracite coal the railroads paid an average of \$4.23 for contract coal and \$4.50 for spot coal, as compared with \$3.45 and \$3.04 last year. In the New England district the average was \$7.14 for contract coal and \$10.54 for spot coal as compared with \$5.46 and \$5.33 last year. The utilities paid \$4.61 and \$6.28 as compared with \$3.19 and \$5.15 last year, and the industries \$2.48 and \$4.85 as compared with \$2.76 and \$3.25.

The table also shows the number of net tons on hand on July 31, 1920, as compared with the amount a year before. The railroads had only 3,364,043 tons of bituminous this year and 8,782,275 last year. That part of the table referring to bituminous coal purchased by railroads is as follows:

Geographical district	Number of companies reporting	Quantity purchased (net tons)				Cost at mine per net ton				Number of net tons on hand	
		Contract		Spot		Contract		Spot		July 31, 1920	July 31, 1919
		July, 1920	July, 1919	July, 1920	July, 1919	July, 1920	July, 1919	July, 1920	July, 1919		
New England	7	458,824	443,387	366,399	33,182	\$1,717,165.00	\$1,026,232.00	\$3,624,199.00	\$60,323.00	299,996	1,104,103
Average price at mine per net ton						3.74	2.31	9.89	1.82		
Other Eastern	49	4,099,458	3,678,806	403,808	224,213	13,249,226.00	8,332,044.00	1,994,717.00	520,430.00	1,029,953	2,524,098
Average price at mine per net ton						3.23	2.26	4.94	2.32		
Southern	30	1,504,435	1,353,955	319,741	92,813	4,819,341.00	3,219,521.00	1,708,132.00	233,925.00	510,047	1,193,300
Average price at mine per net ton						3.20	2.38	5.34	2.52		
Western	73	3,564,774	3,403,873	428,496	126,560	11,477,632.00	9,369,204.00	1,795,475.00	319,516.00	1,824,038	3,960,774
Average price at mine per net ton						3.22	2.75	4.19	2.52		
Total—all districts	159	9,627,491	8,880,021	1,518,444	476,768	31,263,364.00	24,947,001.00	9,122,523.00	1,134,194.00	3,664,034	8,782,275
Average price at mine per net ton						3.24	2.47	6.01	2.40		

## Apply the Recommended Practices\*

By C. A. Morse

Chief Engineer, Chicago, Rock Island & Pacific, Chicago

THE AMERICAN RAILWAY ENGINEERING ASSOCIATION has spent 21 years in the study of the maintenance methods and practices, and its committees have been composed of men who have been actually engaged in maintenance of way. The practices, methods and appliances in use on the different railroads have been tabulated, and from the studies made they have reported recommended practice. These recommendations have been reviewed and amended from time to time, until at this time there is no question about their being the very best authority as to what will give the most economical and safe construction and maintenance of the railroads of the American continent.

With the passage of the Esch-Cummins Transportation Act, the Interstate Commerce Commission is instructed to make such rates as will, in addition to paying operating and maintenance expenses and a proper depreciation, return a certain rate of interest on the investment in the railroads as a whole, or in certain groups.

It is evident that in order to be fair to all railroads and to the patrons of the roads, a classification should be made of the different roads and sections of the same road, based upon density of traffic, weight of locomotives and frequency and speed of passenger trains, and there should be a specification covering construction and maintenance of each class of road to be followed by all the railroads in that group, so that the money expended by the different roads shall be fairly uniform, in order that the receipts from the established rates shall not be expended too lavishly in one case or too niggardly in others. No records or recommendations are based on such general study and careful consideration as those of the American Railway Engineering Association, and it is fair to presume that its recommended practice will be adopted.

There is a strong probability that a stop will be put to the present practice whereby over 50 different sections of rail are rolled between the weights of 70 and 140 lb. per yd., when 7 sections will answer all the purposes, and are all that are recommended by this association. A set of rail rolls costs about \$5,000, and a rolling mill has to carry an investment of \$250,000 for rolls to roll 50 sections, when an investment of but \$35,000 would suffice to roll 7 sections. The railroads, and through them the public, have to pay the interest on this additional \$215,000 invested by each mill in surplus rail rolls. The same thing applies to rail joints and tie plates. The public is not going to continue to pay increased railroad rates to meet the whims of individual railroads.

One of the practices that has the least reason for existence and which costs an immense amount of money per year is that of the variation in punching and drilling of rail. There is absolutely no reason why all rail of the same section should not be drilled the same. With this standardized, all joints for that section of rail would be drilled the same.

Frogs and switches should be the same for the same class of railroads, thus doing away with the innumerable patterns that frog and switch manufacturers have to carry today, and permitting the manufacture of frogs and switches for stock instead of having to make them to order, as is the present practice.

There should be uniformity in width of roadbed, width of cuts at sub-grade, depth of ballast, amount of shoulder for ballast of different kinds; also in the use of treated track, bridge and switch ties, and the use of tie plates. Many roads in the past who have recognized the economy of treated

ties and the use of tie plates, have not used them on account of the immediate expense.

The new conditions are going to call for the practice that is the most economical in the long run, as the public will have to pay the bills in rates and is entitled to have these rates as low as the best practice and the practice that is most economical in the long run will produce.

It is to be hoped that the reorganized American Railroad Association will be used by the Interstate Commerce Commission as the medium through which uniformity of practice can be secured, and that the American Railroad Association will be given mandatory powers to enable it to secure these results.

Section II—Engineering, of the American Railroad Association, consists of the American Railway Engineering Association; the former Signal Association and former Committee on Electrical Working, and is the Section that would be called upon for recommendations as regards maintenance of way and structures. In view of its 21 years of study of maintenance problems, the American Railway Engineering Association is particularly well qualified to function promptly and efficiently in this capacity.

## Priority Ordered for Navy Coal Under War Power

WASHINGTON, D. C.

THE INTERSTATE COMMERCE COMMISSION on October 1 issued Service Order No. 19, giving preference and priority in the transportation of coal commandeered by the Navy and produced in certain mines in Pennsylvania and Maryland, on the ground that the President, by the Secretary of the Navy, had certified to the commission that such preference and priority "is essential to the national defense and security."

This reminder that the country is still technically at war is the first order that has been issued by the commission under the war power of the interstate commerce act, as provided in paragraph 15 of section 1. Its previous orders have been issued under the provisions of that paragraph authorizing it to issue priority orders whenever it "is of the opinion that shortage of equipment, congestion or traffic or other emergency requiring immediate action exists." Another clause in the same paragraph says that "In time of war or threatened war, the President may certify to the commission that it is essential to the national defense and security that certain traffic shall have preference and priority in transportation, and the commission shall, under the power herein conferred, direct that such preference or priority be afforded." It is understood that the Navy Department originally asked that the order be issued under the general emergency provisions of the section.

The order applies to about 50,000 tons of coal per month to be shipped to the various navy yards and other points on the Atlantic seaboard from mines on the Baltimore & Ohio, Pennsylvania, Cumberland & Pennsylvania, East Broad Top Railroad & Coal Company, and the Cambria & Indiana, which, together with other carriers named in the order, form the routes over which the coal may be transported. These roads are ordered, as they participate in the transportation, to afford preference and priority in the supply of cars and transportation, in accordance with a schedule which is made part of the order.

MORE SUPPLIES FROM AMERICA.—The Melbourne Electric Supply Company, Australia, has placed an order for a supply of grooved tramway rails in America, as English rolling mills, it is said, could not quote for the rails. The price shows an advance of 400 per cent on pre-war rates.

\*Abstracted from Bulletin No. 227 of the American Railway Engineering Association.



# Results of Twelve Years of Electric Operation

## Grand Trunk Equipment Still in Good Condition—A Description of the Kind of Maintenance Required

By R. L. Hermann

**S**INGLE-PHASE electric locomotives were placed in service on the Grand Trunk in May, 1908, for the purpose of hauling freight and passenger trains through the St. Clair tunnel, under the St. Clair river, connecting Port Huron, Mich., and Sarnia, Ontario. The tunnel is a single track tube, 6,032 ft. in length, with approaches totaling 5,603 ft. The track enters the tunnel from the Michigan portal with a descent of two per cent for 1,914 ft., then graduates to 1.5 per cent for 1,718 ft. and then takes a two per cent grade for 2,400 ft. to the portal on the Canadian side. The locomotives haul trains of 1,000 tons up these two per cent grades at a speed of 10 miles per hour. The service rendered by both the power plant and the electric locomotive equipment has been such that during the entire 12 years of operation, delays of even a few minutes have been almost unknown. Some delays, due to insulator failure causing short-circuits, occurred at first, but this trouble has practically been eliminated by changing the design of some of these devices. The only trouble since these changes were introduced has been due to rare mechanical and accidental injury.

There are six locomotive units, each weighing about 65 tons and mounted on a frame which is non-articulated from end to end. None of them have shown any signs of weakening. Each locomotive, consisting of two units, has a rating of 1,500 h.p. and a maximum safe speed of 30 miles per hour. Each motor is directly connected through a single gear and pinion to a pair of 62 in. driving wheels. Considering that no quills or springs are used to absorb the shocks, the performance of the gears and pinions has been exceptionally good. A number of the original gears are still in service and in good condition after having made 432,000 miles. Some of the pinions have made more than 150,000 miles and are still in good condition.

### Driving Wheels

At first, considerable trouble and expense was experienced with the wheels due to abnormal flange wear, which was caused to a large extent by the rigid wheel-base and the great number of curves and switches encountered. The mileage never exceeded 25,000 before it was necessary to remove the wheels for turning. In July, 1910, W. D. Hall, superintendent of the tunnel, conceived the idea of an atomizer to spray oil on the wheel flanges by means of compressed air. This is accomplished by pressing a button in either of the controllers, one of which is at each end of the cab. The oil is applied as the locomotive approaches a curve and then only for a very short duration of time. The results have been so remarkable that the tires of No. 9 pair of wheels of locomotive No. 2,658 have made a mileage slightly exceeding 300,000 miles since they were in a lathe.

It is found that the mixture of oil and air not only lubricates the flanges, but cleanses them from grit and sand. The lubricators are placed outside on the locomotive frame; the oil is thinned to suit the temperature conditions, so that it is sprayed nearly as well in winter as in summer. This device alone has naturally brought about a very considerable saving in both labor and tires. The electric locomotives on this property have been available for service more than 90 per cent of the time.

### Pantographs, Autotransformers and Switch Groups

Each unit is equipped with one pneumatically-operated pantograph which is controlled from the engineer's cab. With a reasonable amount of attention these have given very little trouble. Breakages usually occur as a result of the shoe catching in some part of the overhead construction, but such trouble is rare.

The pantographs collect the current from a catenary overhead construction, supplemented with a steel contactor wire on the grades, at 3,300 volts, 25 cycles. The same voltage is used direct from the power plant, which is located near the portal of the tunnel on the Port Huron side.

After the current is collected, it passes to the autotransformer, which is located on one side of the cab. During severe electrical storms two of these transformers were affected, but repairs were made without removing them from the locomotive. The cabs are roomy and all of the apparatus in them is readily accessible. The switch groups are located on the side of the cab opposite the transformer. The contacts in the switch groups require occasional scraping and the shunts are renewed from time to time, but all in all the smallness of the amount of burning is remarkable. The valve parts require little attention. An air compressor oil is used which does not cause gumming of the small parts.

The controllers are of the locomotive type, with short angular movement and the number of accelerating resistance steps provided give a very smooth acceleration without slipping the wheels. The controllers require little attention and have given practically no trouble.

### Main Motor and Locomotive Auxiliaries

The field windings of the main motors have given no trouble at all but some armatures have been repaired from time to time. The commutators have made more than 400,000 miles each and up to the present time not one has been renewed. Arrangements are now under way to start renewals, so that no trouble will be met in a year or two, due to the necessity of renewing a number of commutators at one time. Practically all the motors have made the same mileage and the wearing parts have held up very uniformly. Some of the commutators have exceeded 100,000 miles since last being turned and slotted. The brush mileage varies between 40,000 and 60,000 miles. No shunts or caps are used with the brushes, but the finger tips are practically the full width of the brush.

The air compressors have given satisfactory results. They are equipped with electrically controlled governor synchronizers, which cause both compressors to start and stop at the same time for double heading operation of the locomotives. The air compressor and blower motors have given splendid service. The latter have not required repairs to either the stator or rotor windings. Only three armatures of the former have been repaired, and one of these had the canvas heads renewed only. The commutators are cleaned from time to time, but it is not necessary to dress them in a lathe.

### Power Plant

The two main units in the power plant are Westinghouse three-phase, 25-cycle, 3,300-volt turbo-generators. Operating

in conjunction with these are two barometric condensers, two engine-driven exciters, one motor-driven exciter and two air pumps. In the turbine room basement are two engine-driven circulating pumps of the centrifugal type, one house pump, two engine-driven stoker fans, the transformer room, a store-room and a mercury arc rectifier. The boiler room contains four water tube boilers equipped with underfeed stokers, an independently fired superheater, overhead coal bunkers and two feed water pumps.

The insulation of the generator fields gave evidence of breaking down after about six years' operation, at which time they were rebuilt with more modern insulation. They have given splendid service since that time. The stator coils have not given any trouble whatever, although frequently subjected to severe strains.

The motor driven exciter unit has given excellent service. It has been in continuous operation, night and day, for 12 years with exception of a few minutes each week for inspection and dusting. The commutator of the direct-current generator has never been turned or dressed since being slotted about 11 years ago. During an electrical storm, one or two coils in the motor broke down, but were repaired in short order and the set put back in service.

The turbines have given very satisfactory service during the 12 years. No bearing trouble has been experienced. In fact, the oil stone marks on the spindles are just about as fresh as when they were made 12 years ago. Some of the steel blading has been removed and as the small or high pressure blading was not laced it has been found advisable to replace the small unlaced steel blading with laced bronze blading. The turbines take the irregular loading without noticeable vibration.

The condensers and circulating pumps have required the ordinary running repairs only. For a short period at the start, the condensers caused a little trouble due to the spray nozzles becoming clogged with small fish during certain seasons, as the water was taken directly from the St. Clair river. This was overcome by removing the grids from the nozzles, thus permitting the fish to go right through with the water.

The engines of the engine-driven circulating pumps have received only the ordinary repairs and the pumps show practically no sign of wear. In fact the paint with which the impellers were originally painted is even now quite fresh.

The boiler feed pumps are of the reciprocating type. They have received frequent repacking and renewals of parts. Water for sealing the turbine glands and various parts is supplied by a house pump of the reciprocating type. In order to avoid trouble, due to loss of vacuum on account of failure of the water supply, the discharge pipe of the pump is connected with the city supply line, but interposed by a check valve. Hence, by maintaining a slightly higher pressure at the house pump than that of the city line, no water from the city system can pass. Should it be necessary to stop the house pump, or should it fail, the check valve will open and thus an uninterrupted supply of water is maintained. This little detail in itself is a good precaution which guards against an accident that might tie up the system and it is characteristic of the whole installation.

The boilers and stokers have given very satisfactory results, especially in view of the fact that they have had to care for very erratic load conditions. A few tubes have been renewed during the 12 years and the furnaces have been repaired from time to time. It is probable that it would not have been necessary to have renewed even these few tubes if slack coal could have been used at all times. On account of the very sudden demands for power it is necessary to use high air pressure, so that when crushed mine run is used a blow torch effect may be set up to such an extent as to result in the blistering of tubes.

Although working under widely fluctuating conditions of load, not one retort was burned out and not one renewed in a period of 11 years. At the end of this period all the retorts were renewed, because they were worn out by the action of the rams and corrosion, where they were set in the brickwork at the front end. The boilers and stokers have been in 24-hour service since November, 1907, only being out of service during their regular cleaning and inspection periods.

### Trolley Line Construction

The trolley and messenger wires are supported on steel bridges, which are spaced at 250 ft. intervals. The trolley wire is suspended from the messenger wire by catenary hangers spaced every 13 ft. This type of construction has given very satisfactory results. The greatest wear was found at points of rigid support. At these points an iron trolley wire was installed beneath the copper, and this has given satisfaction, especially where it is not exposed to steam locomotive gases.

Train delays due to line material failures have been so few as to make them almost negligible. Especially has this been true during the last six or seven years of operation. During the first few years a few short circuits and consequent delays were experienced, due to insulator failures, which usually resulted from steam locomotive gases causing flashovers. Some failures were experienced due to the cracking of insulators, resulting from unequal expansion and contraction. These have been overcome by installing two insulators in series where locomotive gases have to be contended with. At first there was some insulator trouble in the tunnel due to unequal expansion and contraction, but this difficulty has been overcome by installing insulating devices of newer design.

Another source of trouble due to short-circuits was brought about by birds alighting on the lightning arrester tips. As it would be a difficult matter to educate the birds, perches were provided above the arrester tips for the birds' convenience, and in this manner the trouble was easily overcome.

### Detroit Edison Service

Arrangements have been completed with the Detroit Edison Company to supply power for the tunnel operation. A Westinghouse synchronous motor-generator set with a capacity of 2,860 kilowatts has been installed in the substation, which stands just north of the power house. The motor operates at 4,600 volts, 60 cycles, three-phase, and the generator furnishes single-phase, 25-cycle current at 3,300 volts to the tunnel trolley. The trainload reaches a four-to-six-minute peak of about 2,400 kilowatts. Both the motor and generator sides of the machine have separate exciters at the respective ends of the shaft. Both exciters are equipped with automatic regulators. The motor exciter regulator takes care of the power-factor and the other regulator controls the generator voltage.

### Results

The average cost of maintenance of the electric locomotive equipment, material and labor up to December, 1914, was 4.514 cents per locomotive-mile, and from December, 1914, to December, 1919, 7.051 cents per locomotive-mile.

The fact that the electric locomotive equipment, the power plant equipment, and the line material are in splendid operating condition today, not only speaks well for both the design of the various parts and the quality of material used in their construction, but also for the maintenance and supervision given them during these twelve very successful years of operation.



# The Economic Value of Railway Safety Work\*

## Indirect Results Gained Exceed Direct Results—Marked Improvement in Railway Accident Record Within Last Decade

By Samuel O. Dunn  
Editor of the *Railway Age*

**R**AILROAD TRANSPORTATION always has been recognized as a hazardous industry—hazardous to those working for the railways, to those using their service and to those having occasion to go upon or cross their properties. If I remember my history correctly, on the first occasion when a steam locomotive drawing a train was run in England, a prominent statesman who had been active in securing the construction of the railway was killed.

In consequence of the clearly recognized hazardousness of the industry, efforts constantly have been made since the first railway was built to reduce the hazards and increase the safety of operation. Until within the last decade these efforts had met with greater success in some other countries, notably in France, Great Britain and Germany, than in the United States. The accident record of our railways long was bad by comparison with that of the railways of almost any other leading country, and the worst of it was that it did not improve much. Accidents increased as the mileage and the amount of business handled increased. Those who studied the problem realized that this was principally due to two causes. One was that most of our railways were hastily and poorly built into new and undeveloped territories, and the character of their construction made the prevention of accidents very difficult. The second and most important reason was that our railway officers and employees had the characteristic American tendency toward recklessness, the tendency to "take a chance" regardless of consequences. This tendency of employees, who in this respect were merely typical Americans, was so strong that even after the physical properties of many railways had been greatly improved and safety appliances of numerous kinds had been installed it was found extremely difficult to get employees to protect themselves and the patrons of the railways by properly using the facilities at their disposal.

About ten years ago the railway accident situation grew so bad that it became the subject of much agitation and of great concern and consideration by railway executives and operating officers throughout the country. One of the results was the starting of what was called the "safety first" movement. The real father of this movement on the railways, as I believe is generally recognized, was R. C. Richards, general claim agent of the Chicago & North Western, who is now president of the National Safety Council. It was on his initiative that the management of the North Western began the formation of local safety committees all over its lines, composed of both officers and employees. The example set was rapidly followed by railways in all parts of the country. Not only were hundreds of safety committees organized, but many railways created safety departments in charge of able men whose duty it was to study all the conditions which tended to cause accidents and to devise remedies for them. A very extensive propaganda was carried on among employees to educate them regarding their own interest and the interests and rights of the railways and of the public concerning this matter.

### Increase of Safety on Railways

The results of all the work which has been done within the last ten years in installing safety devices and in edu-

cating officers and employees upon this subject are strikingly reflected in the statistics regarding railroad accidents. The latest statistics available regarding railway operations and railway accidents for an entire year are those for 1918. In the eight years from 1910 to 1918 the amount of freight handled increased 70 per cent and the number of passengers about 30 per cent. It is a remarkable fact that during these years there not only was no increase but a marked reduction in the number of railway employees and of passengers and other persons carried under contract who were killed. The number of employees, both on and off duty, killed in 1910 as a result of train operation was 3,383, while in 1918 it was only 2,781. The number of passengers and other persons carried under contract killed in 1910 was 421, while in 1918 it was only 342. This makes a total of 3,804 employees and passengers and other persons carried under contract who were killed as the result of the operation of trains in 1910, and a total of 3,123 in 1918. The number of employees killed in railway industrial accidents in 1910 was 421, while in 1918 it was 418. There was even a marked reduction in the number of trespassers killed. The figure for the number of this class of persons killed in 1910 is not available, but we know it was about 5,000. In 1918 it was only 3,255.

It is surely a high tribute to the efficiency of those who have carried on safety work for the railways that this record can be exhibited. Lest some of my friends who believe in government control should claim that the good results obtained in 1918 were due to government operation, I will say in passing that in 1917, under private operation, the number of both passengers and employees killed was less than in 1918.

While, however, gratifying progress has been made on the railways, I need hardly tell you that the number of persons annually killed and injured upon them is still much too large. The total number of all classes killed in 1918, including trespassers and those killed at highway crossings, was almost 10,000, while the total number of all classes injured was almost 175,000. When we discuss the need for safety measures we usually discuss them on the assumption that they are needed almost entirely to prevent the loss of life or the pain and suffering occasioned to their victims. Undoubtedly that is the most important point of view from which the subject should be considered. I am going to venture today, however, to call your attention to the fact that safety work has economic phases which are of very great importance.

### Economic Effects of Accidents

Almost every accident has some economic consequences. By that I mean that it either results in some destruction of property, or temporarily, partially or completely destroys the value of one or more persons as producers. The amount of property destroyed each year in railway accidents, including both the property of the railways and of their patrons, is very large. The destruction of a large amount of property is the destruction of the results of the work of a large number of men, and it causes directly and indirectly a diminution of the amount of necessities, comforts and luxuries available for the use and consumption of the public. It is obvious that if all the property and all the commodi-

\*An address delivered before the Railroad Section, National Safety Council, at Milwaukee, Wis., on September 30, 1920.

ties produced by men's work were immediately destroyed we should all be speedily reduced to starvation and misery, no matter how hard we worked. The destruction by accidents or otherwise of a smaller amount of the things produced by the labor of our brains and hands has similar effects which are great in proportion to the amount of the destruction.

Likewise, every accident which results in a man being killed or maimed reduces the total production that otherwise would be obtained. When a man who has just reached his prime as a worker suddenly is cut off society loses a large part of the work that has been done to rear and develop him. It gets only a partial economic return for his economic cost. When a man is compelled to refrain from work because of an accident society loses the product which would have been obtained from his exertions if he had been able to stay at work. As I have said, the number of men injured in railway accidents in the year 1918 was 175,000. If those men lost an average of four days each the total loss of working time aggregated 700,000 days, which was equivalent to the complete loss of the work of 27,000 men for one month.

To measure the results of railway accidents in economic terms of lost production, and lost opportunity for consumption on the part of the public, may seem a coldblooded way to treat the subject; and as I already have indicated, I recognize the fact that the main purpose for which safety work should be carried on is to prevent the cutting off of the lives and the pain and suffering of the victims. But to measure the results of accidents by economic standards is by no means so coldblooded as it may seem. When a man in the prime of life, with a family dependent upon him, is cut off or loses a limb the economic consequence to his family is the destruction or reduction of his income. The amount of deprivation, pain and suffering occasioned to the families of the victims of accidents is surely comparable with the effects upon the victims themselves.

#### Indirect Economic Effects

It is not, however, the immediate families of the victims who experience all the economic effects. The welfare of society as a whole demands not only a fair division between all classes of what is produced but the largest aggregate production of necessities, comforts and luxuries that is compatible with reasonable conditions of work for those who do the work of society. Now, every accident by which a man loses his life, or even is temporarily disabled, reduces the amount of production that can be secured for the general good.

Railway safety work has the direct effect of reducing the amount of property destroyed and the number of persons killed and injured, and if its economic value were to be measured merely by these direct and obvious effects it would be worth far more than it costs. From an economic point of view, however, its indirect effects may be and probably are more valuable than its direct effects. In the first place, every derailment, collision or other train accident which occurs not only affects the trains directly involved, and the persons upon them, but also affects the operation of a large part or even all of the railroad upon which it occurs. It throws passenger trains off their schedules, delays freight trains and has other consequences which reduce the amount of traffic that can be handled and adds greatly to operating expenses. The number of collisions upon our railways in 1918 was 8,715, the number of derailments 13,568, the number of boiler explosions 239, the number of other locomotive accidents 275, and the number of miscellaneous train accidents 1,898. This made a total of 24,695 train accidents of all kinds. The damage of railway property reported as a result of these accidents was \$20,954,350, but the reduction of earnings and the increase in operating expenses in-

directly due to them caused an aggregate loss exceeding by many times the value of the property destroyed. Whatever tends to reduce accidents necessarily tends to reduce these very large indirect effects which are due to them.

#### Careful Worker Is Efficient Worker

The economic effects of railway safety work are even greater and more comprehensive than what has been said already would indicate. The principal cause of railway accidents is and always has been the failure of officers and employees to exercise reasonable care in the performance of their duties. Safety work, when properly and effectively carried on, so constantly and forcibly brings home to officers and employees the necessity for being careful in every thing they do that it changes and improves their entire attitude and habits with reference to their work. It results, when they have a thing to do, in their thinking not merely of getting it done in some way, but of doing it in the right way. Now, this improvement in their mental attitude and habits is one of the main things needed not merely to reduce accidents but also to increase their general efficiency. Usually whatever tends to make a man more careful in his work also tends to make him a more efficient worker—that is, a worker who in the long run will do more and better work than he would do if he were not careful. The effects produced by the constant inculcation of the principles of safety upon the general efficiency of the operation of the railroads cannot possibly be measured either in increased passenger miles and ton miles handled per employee, or in terms of reduced cost of handling a given number of tons one mile or passengers one mile, but that increased care by employees in doing their work does tend to increase the general efficiency of operation is beyond question.

#### Safety Work and Sober Problem

There is one other indirect effect of safety work, and especially of the work of safety committees, to which I think attention should be called. The greatest industrial and social problem of our time is that of establishing better and more satisfactory relations between the owners and managements of large business concerns, on the one hand, and their employees, on the other. I believe that the principal reason why employers and employees in so many of our great industries are divided into warring camps is that many business concerns have become so large that their owners and chief officers and their employees seldom come in contact with each other except when they are brought together by controversies regarding conditions of employment and wages. The owners and chief officers of the concerns and the employees have been pushed so far apart that neither class has an adequate understanding of the problems, the functions, the motives or the desires of the other. The suspicions and antagonisms arising from this situation have a direct tendency to reduce efficiency in all industries, including the railroads, and they will never be allayed until employers and employees of large industries come to a better understanding with each other. They will never come to a better understanding with each other until new points of contact are established between them to take the place of the points of contact which have been destroyed by the substitution of vast industrial concerns for comparatively small concerns in which employers and employees worked closer together. I know of no means which actually has been tried on the railroads which is better adapted to re-establish points of contact between employers and employees, and bring about a better understanding between them, than safety committees. When officers and employees work together on safety committees they soon learn that the problems with which they are dealing are problems of mutual concern the solution of which will be equally advantageous to the railways and to the men. The employees who serve upon these



committees are almost certain to get a better knowledge of the problems of railway operation and develop a more friendly attitude toward the managements and to communicate this knowledge and friendly attitude to many of their fellow employees. This again is bound to have a tendency to promote efficiency in the operation of the railroads.

On the whole, therefore, I firmly believe that the safety work being done on the railways is not merely, from a humanitarian point of view, but also from an economic and social point of view, one of the most important kinds of work being done on them. From a purely economic standpoint no railway management can afford to hesitate to spend all the money that is necessary to have safety work adequately and ably done. It is, on the other hand, a kind of work which from a purely business point of view no railway management can afford to neglect. While great progress has been made in this kind of work within the last decade, it is only necessary to mention the fact that 10,000 people were killed and 175,000 injured on our railways in 1918 to emphasize that there is great need for safety work on the railways to be carried on more comprehensively, energetically and ably than it ever yet has been.

## Classification of Subordinate Officials

WASHINGTON, D. C.

**M**ODIFICATIONS of the regulations issued by the Interstate Commerce Commission on March 23, defining the term "subordinate official," as used in the transportation act, for the purpose of determining which of the minor officials of the railroads are within the jurisdiction of the Railroad Labor Board, were requested and opposed by various organizations at a hearing before Commissioners Clark, Daniels and McChord at Washington on October 1. Some organizations desire independent recognition of their members as subordinate officials so they may represent them before the Railroad Labor Board, while the standard labor organizations desire to retain jurisdiction of as many men as possible and the railroads desire that those who are in a fiduciary relationship to the company or have authority to employ, discipline, or dismiss employees be considered as officials. The Grand Order of Supervisors of Railroads maintains an organization which is not in the same class with the labor organizations, but takes the position that its members are officials. The commission's regulations issued on March 23 define subordinate officials not by classes but in accordance with their relations with the company and therefore include as officials some who are claimed by organizations as subordinate officials.

The Roadmasters' and Supervisors' Association asked that its members be classed as subordinate officials.

J. G. Luhrsen, president of the Train Despatchers' Association, asked that the definition of train despatchers classed as subordinate officials be broadened to leave out the restriction to those not vested with authority to employ, discipline and dismiss employees. He argued that train despatchers had been recognized as subordinate officials by the Railroad Administration and that the commission should merely confirm that status. He said some railroads were refusing to recognize the right of his organization to represent the despatchers and also were trying to prevent the labor board from exercising jurisdiction.

The National Order of Railroad Claim Agents objected to the limitation to claim agents not vested with authority to bind the company to pay claims.

The Traveling Auditors' Association asked that its members be included as subordinate officials on the ground that they bear no fiduciary relations to the company, but are governed by written instructions.

The Order of Railroad Station Agents asked that supervisory agents be classed as subordinate officials. E. J. Manion, president of the Order of Railroad Telegraphers, asked that no change be made in the status of station agents, saying that his organization had always legislated for them as employees except for a few at the larger stations.

Charles G. Poirier, vice-president of the Grand Order of Supervisors of Railroads, asked that no modification be made in the regulations, saying that under them most of the supervising officials now believe they are properly classed as officials and that they should not be allowed to affiliate with the organizations of the men they supervise. Mr. Poirier also said that if the commission should modify its regulations to classify subordinate officials by title without regard to their authority or relation to the company, it would throw the supervisory foremen into the ranks of the American Federation of Labor and defeat the purpose of the law.

B. M. Jewell, president of the Railroad Employees' Department of the American Federation of Labor, said that the classification of subordinate officials should include those below the rank of general foremen, in order that they might be represented by his organization before the Labor Board.

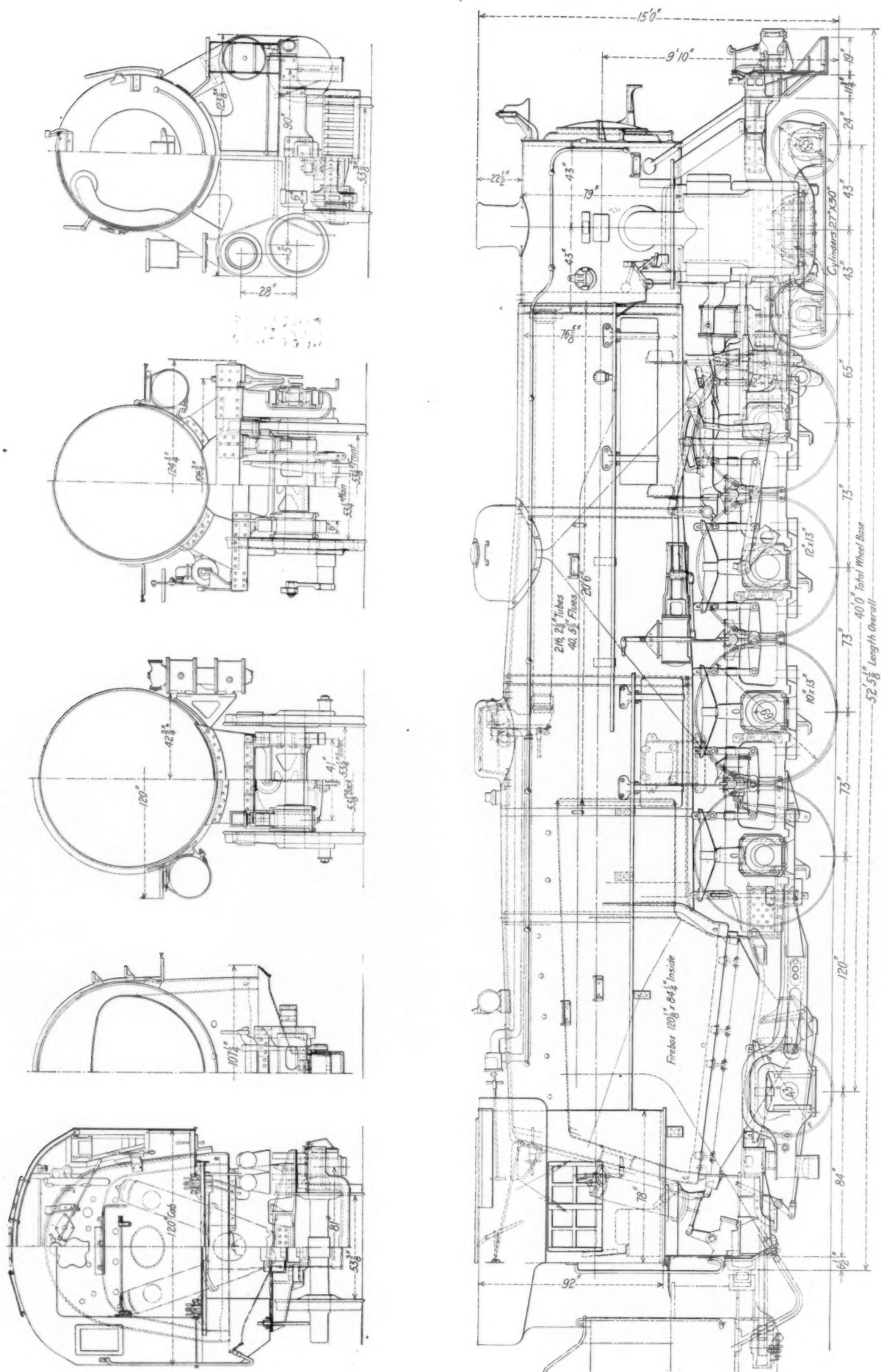
D. W. Helt, president of the Brotherhood of Railroad Signalmen, expressed satisfaction with the commission's regulation including as subordinate officials supervisors of signals with rank below the grade of assistant supervisor of signals and asked that no change be made.

Alfred P. Thom, counsel for the Association of Railway Executives, said that under the law the commission was directed to define subordinate officials, and he disputed the claim that it should be bound by any classification that may be claimed to have been made by the Railroad Administration. He argued that subordinate officials should not include those entrusted with the duties of management and that the management could not properly perform its function if some of its officials owed allegiance to organizations formed for other purposes.

E. T. Whiter, representing W. W. Atterbury, chairman of the labor committee of the Association of Railway Executives, said that the director general had never definitely classified subordinate officials, but had loosely applied the term to certain classes to emphasize their character as officials whose compensation should be decided by the operating officials, as distinguished from employees who were allowed to present their claims for wage increases before the Board of Wages and Working Conditions. He took the position that officials having authority to employ, discipline or dismiss employees should not be represented by organizations and that train despatchers above trick despatchers, for example, are officials who act for the management. If the management is to be permitted to conduct operations in an efficient manner, he said, it must be free to deal with officials with no divided allegiance who will not leave the company to get along as best it can in order to support a labor organization. "We feel very keenly," he said, "as to what may happen if the management should be deprived of its right to exercise power over its supervisory officials and divested of everything but the responsibility."

J. G. Walber, who was labor assistant to the director of operation for the Railroad Administration, said that the commission would not be able to find that the Railroad Administration at any time made a distinct classification of the lower ranking officials, but that the expressions "subordinate officials," "supervisory officials," and "minor officials," were used indiscriminately to distinguish them from employees.

Chairman Clark announced that the commission is now making a reclassification of railroad employees for statistical purposes which should not be confused with any definition of subordinate officials it should make as required by the law.



Elevation and Sections of N. Y. N. H. and H. Mountain Type Locomotive



# New Mountain Type Locomotives for Fast Freight

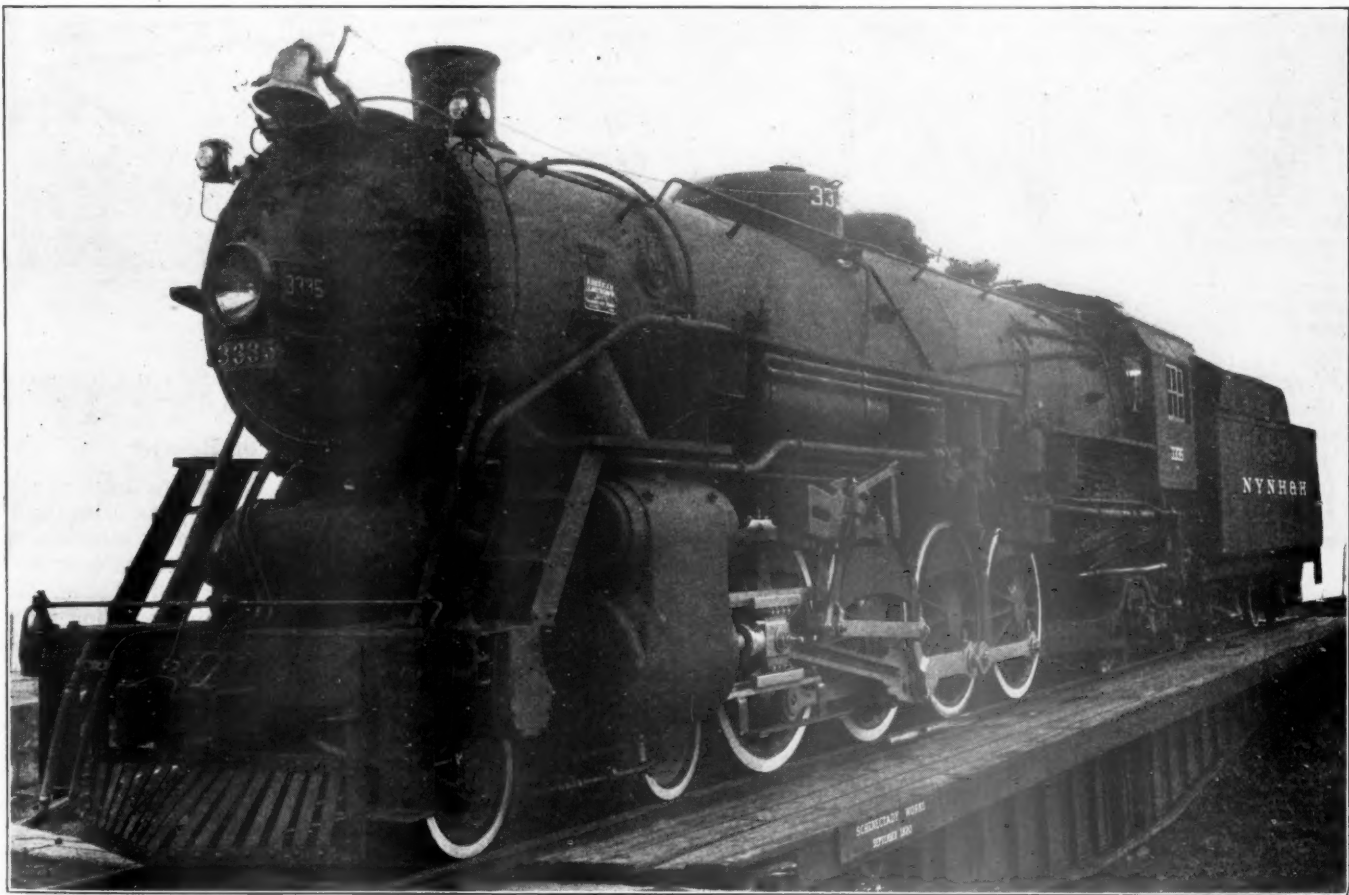
## Modified Design of the Standard Locomotive Adopted by New Haven for Main Line Freight Service

IT WILL BE RECALLED that the Mountain type locomotive first came into prominence in passenger service on the Chicago, Rock Island & Pacific seven years ago, where it enabled the operating department successfully to consolidate two sections of a train that had exceeded the capacity of Pacific type locomotive. Similar locomotives were subsequently purchased for the same character of service on the Chesapeake & Ohio, the Seaboard Air Line and other railroads. More recently the type has found favor in freight service where a large volume of freight must be handled rapidly over congested lines.

The New York, New Haven & Hartford has purchased 30

of the territory served and it may be possible that the potential tonnage rating of the Santa Fe type locomotives would be in excess of the practical limitations on this section on the line. On the other hand, the Mountain type should be able to handle tonnage to advantage in excess of that handled by the Mikado type locomotives and should be able to demonstrate sustained speed with full tonnage trains in excess of either the Santa Fe or Mikado type locomotives.

The new Mountain type locomotive will operate mainly in through service between New Haven and Providence, a distance of approximately 110 miles. As this portion of the



Mountain Type Locomotive for Fast Freight Service

Mountain type locomotives following closely in design the U. S. R. A. standard light Mountain type locomotives delivered to that railroad during federal control. The selection of this type for freight service is particularly significant in view of the fact that the railroad has also had experience with Mikado and Santa Fe type locomotives of recent design.

The construction of a large, well-designed classification yard at Cedar Hill, near New Haven, Conn., which was described in the July 30, 1920, issue of the *Railway Age* has placed the New Haven in a better position to utilize heavy power in freight service. It has always been a difficult matter on the New Haven to assemble heavy tonnage trains regularly for through movement on account of the character

railroad is a two track line over which moves a large portion of the fast passenger service between New York and Boston, the necessity for a locomotive that can handle these freight trains at sustained speed is apparent.

### Performance Characteristics

The light Mountain type was the last of the standard designs to be prepared by the Railroad Administration but the first of these locomotives completed by the American Locomotive Company was consigned to the New Haven. The performance of these first Mountain type locomotives has been generally satisfactory and the new locomotives do not differ from them in any marked degree except for the addition of several important specialties designed to in-

crease the efficiency and capacity of the new locomotives.

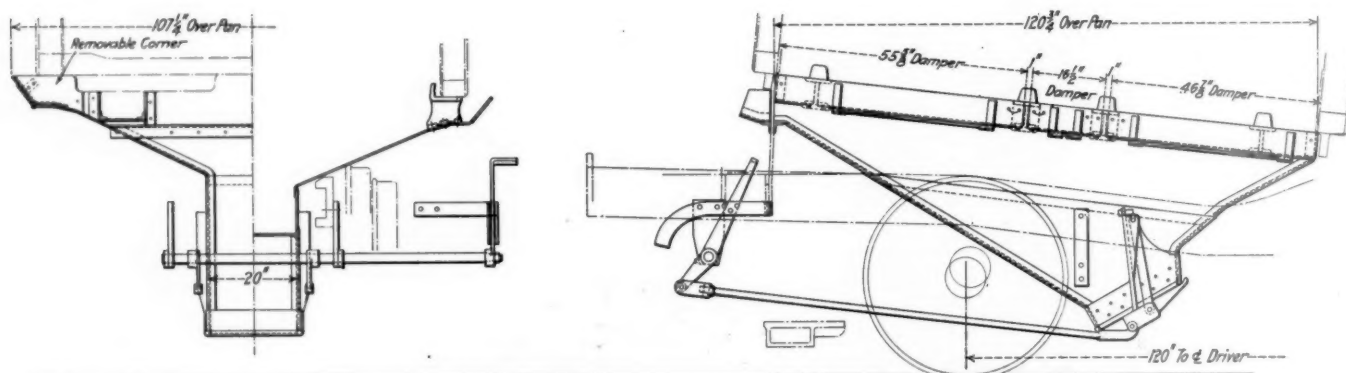
The locomotives will exert a maximum tractive effort of 53,900 lb. The line over which these locomotives will operate is along the shore of Long Island Sound and is practically level except for a few short breaks with a maximum of 0.6 per cent for a short distance. As the tonnage handled by these locomotives will be approximately 3,000 tons, they should be able to handle a large volume of through freight in conjunction with the heavy passenger traffic.

Based on the performance of the earlier Mountain type locomotives it is anticipated that the new locomotives will be able to operate on an average monthly fuel consumption of not to exceed 135 lb. of coal per 1,000 ton-miles. The locomotives will, of course, make a very much better fuel performance between terminals and although these locomotives have been in service only a short time, they have

### Application of Feedwater Heater

The feedwater heater and feedwater pump is an important addition to these locomotives. The apparatus has been applied to five engines and the arrangement of the running board and air pumps on the left hand side of the remaining 25 locomotives is such as to facilitate the application of this device at a later date. The Locomotive Feedwater Heater Company's standard apparatus is used. This includes a type E-1 heater and a 6½ in. pump having a capacity of approximately 7,500 gal. an hour.

The railroad has adapted an open-minded attitude toward the application of feedwater heaters. The fuel problem is acute on the New Haven and it is realized that every possible effort must be made to obtain the maximum service from every pound of coal. Feedwater heaters of the exhaust steam type appear to offer possibilities for a very large fuel saving



Single Dump Ash Pan Designed to Facilitate Booster Application

already shown remarkable economy in the use of fuel. A close record is being kept of their performance and three of the locomotives recently effected an average record of 62 lb. of coal per 1,000 ton-miles between terminals with an average train load of 2,968 tons. One of these locomotives was equipped with a feedwater heater which is part of the regular equipment applied to five of these locomotives.

### Changes in the Standard Design

The general dimensions of the new locomotives are practically identical with the U. S. R. A. standard light Mountain type locomotives described in the May 16, 1919, issue of the *Railway Age*. The boiler and firebox are the same with the exception of a small increase in the number of staybolts applied and an increase in superheater heating surface from 966 sq. ft. to 1,009 sq. ft. The engine truck presents the first noticeable departure; this is of the constant resistance type with Commonwealth cast steel truck frame. Wheel dimensions are the same but the distribution of weight is changed as shown in the following table:

	Light Mountain type locomotive	
	New N. Y., N. H. & H.	U. S. R. A. standard
Total weight, lb.	328,500	327,000
Weight on drivers, lb.	229,000	224,500
Weight on engine truck, lb.	47,000	49,500
Weight on trailing truck, lb.	52,500	53,000

The important specialties applied to these locomotives include the following: Duplex stoker, Franklin firedoor, Franklin grate shaker, Radial buffer and Unit drawbar, Alco flexible staybolts (1773 applied), Chambers throttle valve (modified design), Lewis power reverse, and Southern valve gear.

The cylinders are cast with by-pass valve chambers to permit the future application of the railroad company's standard by-pass valves.

particularly on the long level pulls where the locomotives will be continuously exhausting steam.

### Future Application of Booster

The application of a booster to the trailing truck of these locomotives should materially increase the maximum tractive effort available for starting trains and might eliminate the services of a pusher used in assisting the trains over Branford Hill, a short distance out of the Cedar Hill yard. The railroad has probably had this in mind in providing for the future application of the booster to the extent of equipping all of the locomotives with trailing truck axles so designed that booster gears can be applied without necessitating new axles. The trailing truck is of the Woodward-Commonwealth type and the trailing truck brake is also arranged for the possible future application of the booster.

The most interesting detail in this connection is the use of a single hopper ashpan. The base of the pan slopes forward to a single drop door in advance of the trailer truck axle. The purpose of this design was to facilitate the application of the booster, although it appears that a further change would have to be effected in the design in order to provide sufficient clearance for the booster mechanism.

### Principal Dimensions

The principal dimensions and data for these locomotives are as follows:

GENERAL DATA	
Gage	4 ft. 8½ in.
Service	freight
Fuel	bituminous coal
Tractive effort	53,900 lb.
Weight in working order	328,500 lb.
Weight on drivers	229,000 lb.
Weight on leading truck	47,000 lb.
Weight on trailing truck	52,500 lb.
Weight of engine and tender in working order	511,000 lb.
Wheel base, driving	18 ft. 3 in.
Wheel base, total	40 ft. 0 in.
Wheel base, engine and tender	75 ft. 7½ in.



## RATIOS

Weight on drivers ÷ tractive effort.....	4.25
Total Weight ÷ tractive effort.....	6.1
Tractive effort × diam. drivers ÷ equivalent heating surface*.....	660
Equivalent heating surface* ÷ grate area.....	80.1
Firebox heating surface ÷ equivalent heating surface* per cent.....	6.2
Weight on drivers ÷ equivalent heating surface*.....	40.7
Total weight ÷ equivalent heating surface*.....	58.3
Volume both cylinders.....	19.9 cu. ft.
Equivalent heating surface* ÷ vol. cylinders.....	283.2
Grate area ÷ vol. cylinders.....	3.5

## CYLINDERS

Kind.....	simple
Diameter and stroke.....	27 in. by 30 in.

## VALVES

Kind.....	piston
Diameter.....	14 in.
Greatest travel.....	7 in.
Steam.....	1 1/4 in.
Exhaust clearance.....	3/8 in.
Lead.....	1/4 in.

## WHEELS

Driving diameter over tires.....	69 in.
Driving journals, main, diameter and length.....	12 in. by 13 in.
Driving journals, others, diameter and length.....	10 in. by 13 in.
Engine truck wheels, diameter.....	33 in.
Engine truck, journals.....	6 1/2 in. by 12 in.
Trailing truck wheels, diameter.....	43 in.
Trailing truck, journals.....	9 in. by 14 in.

## BOILER

Style.....	conical, connected
Working pressure.....	200 lb. per sq. in.
Outside diameter of first ring.....	78 in.
Tubes, number and outside diameter.....	216—2 1/4 in.
Firebox, length and width.....	120 1/4 in. by 84 1/4 in.
Firebox plates, thickness.....	tube and throat, 1/2 in.; others 3/8 in.
Firebox, water space.....	Front, 6 in.; others 5 in.
Flues, number and outside diameter.....	40—5 1/2 in.
Tubes and flues, length.....	20 ft. 6 in.
Heating surface, tubes.....	2,597 sq. ft.
Heating surface, flues.....	1,176 sq. ft.
Heating surface, firebox, including arch tubes.....	348 sq. ft.
Heating surface, total.....	4,121 sq. ft.
Superheater heating surface.....	1,009 sq. ft.
Equivalent heating surface*.....	5,635 sq. ft.
Grate area.....	70.3

## TENDER

Tank.....	water leg
Frame.....	cast steel
Weight.....	182,500 lb.
Wheels, diameter.....	33 in.
Journals, diameter and length.....	6 in. by 11 in.
Water capacity.....	10,000 gal.
Coal capacity.....	16 tons

\*Equivalent heating surface = total evaporative heating surface ÷ 1.5 times the superheating surface.

## Intrastate Rate Proceedings

WASHINGTON, D. C.

JOHN E. BENTON, general solicitor of the National Association of Railway and Utilities Commissioners, has issued a supplemental bulletin on the status of intrastate rate advance cases showing that all commissions from which he has received advice have either allowed the proposed advances to take effect without order, or have granted the allowances asked for temporarily or finally, or have disallowed the same wholly or in part, as has been set out in this and former bulletins, except Arizona, Louisiana, and Tennessee.

Alabama. The secretary advises "that the commission has authorized temporary increases in Alabama rates the same as the Interstate Commerce Commission in Ex Parte 74, with the exception of limestone and ore, and has had a final hearing on the petition of carriers to make these permanent. Decision has not been rendered.

Georgia. On September 22 the commission denied the petition of carriers to strike out the exceptions in the commission's order, effective September 1, on brick, cotton and cotton linters.

Indiana. No increases authorized in passenger, baggage, milk, cream, and Pullman rates, or rates on brick. Class rates and coal increased 33 1/3 per cent. Commodities generally increased 10 per cent. Live stock, iron and steel increased 16 per cent. Carriers authorized to file rates effective on one day's notice not earlier than October 1. Maximum scale fixed on straw and short haul coal rates.

Mississippi. On September 16, 1920, the commission made an order permitting carriers to file, effective October 1, "and until such time or times as this commission on complaint or complaints, or on its own motion, or both, may order otherwise," tariffs making the same percentage increases in freight and passenger rates as were authorized interstate in Ex Parte 74.

Nevada. On September 17 the commission denied all increases asked for. The following are the concluding paragraphs of the commission's report:

"The powers of this commission are clearly defined and restricted by the delegation of authority granted by the legislature of Nevada. It is our duty, as we conceive it, to ascertain and fix just, reasonable, non-discriminatory, and compensatory rates to both the public and the carriers, and we have no power to make or authorize rates which consider only the rights and welfare of one of these parties without regard to the other. This commission, therefore, has not the power to make an order, such as the carriers demand, authorizing sweeping changes in every rate throughout the state without regard to their reasonableness; and in this proceeding the carriers have refused to enter upon an investigation as to the reasonableness of the present war-emergency rates of 1918 and the further increased rates here under consideration. Without at this time passing upon the reasonableness of the freight rates which were increased 25 per cent by the Railroad Administration in 1918 and which are said to have closed down a certain proportion of our operating mines, but with the understanding that the carriers may continue to apply said rates pending complaint to and adjustment by this commission, we are of the opinion that the applications of the carriers for authority to horizontally apply percentage increases to the present freight and milk rates, and to passenger, Pullman, and excess baggage fares, should be denied."

Oklahoma. On September 4 the commission granted authority to carriers to file on one day's notice, effective not prior to September 10, tariffs increasing freight and passenger rates by the percentages authorized interstate in Ex Parte 74, with the exception noted in paragraph IV below. The following paragraphs are from the order:

"IV. That the increases hereinbefore authorized for passenger and excess baggage shall apply only to steam carriers and then only where the maximum rate created by such increases will not exceed 3.6 cents per mile, except in the case of minimum charges or disposition of fractions. \* \* \*

"VII. That the increases herein authorized shall be effective for a period of six months from and after September 10, 1920, at which time said rates shall be restored to the basis of rates in effect on February 29, 1920, unless the commission shall extend the period of effectiveness or change the rates herein prescribed. \* \* \*

"X. That the applicants herein be and they are each hereby required to maintain their records so as to be able to advise the commission fully as to the revenues produced by the increases herein authorized, and that they be and they are hereby ordered severally to file with this commission on or before January 15, 1921, a full and complete statement of the revenues secured and expenses incurred in the conduct of intrastate freight and passenger traffic for the period from September 1 to November 30, 1920, both dates inclusive.

"XI. That the applicants herein be and they are hereby ordered severally to file with this commission on or before December 15, 1920, detailed statements of the value of the property devoted to intrastate freight and passenger services within the state of Oklahoma.

"XII. That the applicants herein be and they are hereby ordered severally to file with the commission on or before November 1, 1920, a detailed statement showing every officer or employee of the company on August 1, 1920, whose salary is in excess of \$7,500 per year, or if employed during the month of August, 1920, and paid by the month, or any other period of time whose compensation for the period in question is on the basis of or in excess of \$7,500 per year. Such statement shall show the name of the party employed, the residence, the nature of the occupation and the compensation."

## J. M. Hannaford—Charles Donnelly

**J**ULE M. HANNAFORD, president of the Northern Pacific, has announced his resignation effective on his seventieth birthday—November 19, 1920. After 54 years of railroad service, 48 years of which have been in the continuous employ of the road of which he became president in 1913, he has made way for a younger man whose age, in Mr. Hannaford's own words, better fits him for "the arduous duties and the personal responsibilities of the position of president"—Charles Donnelly, now executive vice-president. Mr. Hannaford will remain with the road as a director and vice-chairman of the board of directors.

Better comments cannot be made upon the reasons for Mr. Hannaford's action and upon his life work than those included in his letter of resignation addressed to Howard Elliott, chairman of the board of directors. He said:

"November 10, 1920, I shall have reached my seventieth birthday. For more than 54 years I have been in continuous railroad service; over 48 years in the service of the Northern Pacific, commencing with the organization of the operating department when we took the first section from the construction company, and remaining continuously until the property represents over 6,650 miles of the best transportation system in America.

"I believe I have done my share in making the success of the property, the prosperity of the country along the line, and the gratifying pride the people tributary to the Northern Pacific take in 'their road.' And this life spent in such service has been, most of the time, a very happy, satisfactory one. The local management has been uniformly harmonious; all working together for the best interest of the property, and the authority resting in the directors has been wisely used and freely given to make the success attained.

"All this has changed; legislation has been enacted, commissions have been elected, committees have been appointed, and authority that I have always recognized and believed should be confined to certain definite channels, in order that the property could be successfully handled, seems to have become too widely distributed.

"The Northern Pacific and all other railroads are about to enter a new era, and, if successful, it must be under a management not so fully wedded to old ideas and traditions. You have such men on the Northern Pacific, but they must commence the new way before they are too fixed in the old, and to do my part in this I would like to be relieved from the arduous burden of the presidency as near the nineteenth of November next as may be perfectly convenient to you."

Later, Mr. Hannaford, in commenting on his retirement, said:

"I am retiring from the active management of the Northern Pacific for no other reason than my desire to be relieved from the arduous duties and the personal responsibilities of

the position of president. They are those of a younger man.

"At the request of the Board, I shall continue as a director of the company and with the title of vice-chairman, with office in St. Paul, shall act in an advisory capacity, still holding my interest in the success of the property.

"Charles Donnelly will succeed me as president. He has been connected with the larger activities of the company for many years and is well known by the officers and the public, and I hope will receive the same loyal support from both that I have received."

Mr. Hannaford's rise to the presidency of the Northern Pacific from chief clerk in the general freight office of that road at St. Paul, Minn., in 1872, was entirely through the traffic department. From 1899 until he became president he was in complete charge of that department successively as third vice-president and second vice-president.

His railway service began in 1866 when he entered the employ of the Central Vermont at St. Albans, Vt., with

which road he remained until he entered the employ of the Northern Pacific in 1872. In his first position with the latter road, he is said to have compiled and written with a pen the first regular distance tariff of freight rates ever published on the Northern Pacific.

Mr. Hannaford was one of the most democratic and approachable of Western railway executives. His long connection with the traffic department made him popular among the shippers with whom he had been associated so long. He has been unusually popular with his subordinates and employees. At the time of his promotion to the presidency, it was said of him "that he never forgets an old friend and has in many ways been especially appreciative of long and faithful service on the part of his subordinates."

Mr. Hannaford was born on November 19, 1850, at Claremont, N. H., and entered railway service in June, 1866, as a clerk in the gen-

eral freight office of the Central Vermont at St. Albans, Vt. On May 17, 1872, he became chief clerk in the general freight office of the Northern Pacific at St. Paul, serving in that capacity until May 1, 1879, when he was promoted to assistant general freight and passenger agent, with the same headquarters. From May 1, 1881, to August 1, 1883, he served as general freight agent of the Eastern division of the Northern Pacific, and from August 1, 1883, to March 1, 1884, as assistant superintendent of freight traffic. Subsequently he served for two years as general freight agent of the main line and branches, for four years as traffic manager, and from 1890 to 1899 as general traffic manager. From 1890 to 1893 he was also general traffic manager of the Wisconsin Central lines during the period when the road was leased to the Northern Pacific. On February 1, 1899, he was elected third vice-president, and on April 1, 1902, second vice-president. From June 1, 1895, to June 28, 1906, he was also vice-president and general superintendent of the Northern Pacific Express Company, and since June



J. M. Hannaford



28, 1906, he has been president of that company. In August, 1913, Mr. Hannaford was elected president of the Northern Pacific after more than 40 years of continuous and loyal service. When the government assumed control of the railroads, he was appointed federal manager, and when the railroads were returned to private control, he again assumed the presidency of that line.

Mr. Donnelly's rise within recent years has been very rapid. He has advanced from assistant general counsel to president within three years. There are several reasons for this. As counsel for the road, handling all kinds of litigation and matters of policy, he has shown a remarkable knowledge of the problems of all its different departments. Furthermore, as Mr. Hannaford remarked in his letter of resignation, the conditions under which the railways must be managed have changed greatly within recent years. Their relations with regulating bodies, their employees and the public require a different handling from the principal problems presented to the generation of executives to which Mr. Hannaford belongs. Mr. Donnelly is thoroughly acquainted with these new conditions, and has shown that he has the vision, the diplomacy and the personality required to deal successfully with them. He is, in fact, a man not only of progressive and constructive ideas and capable of a great deal of hard work, but also one of very attractive personality. It has been known for almost a year to the officers of the Northern Pacific that he was slated to become president, and his election will give great satisfaction to the organization of which he has so long been a part and in which he has risen from the bottom.

Mr. Donnelly was born at Grand Rapids, Wis., on November 9, 1869, and graduated from the Georgetown University School of Law at Washington in 1896. He began railroad work on September 8, 1903, with the Northern Pacific, as assistant division counsel on the Montana division with headquarters at Helena, Mont. In January, 1908, he was promoted to assistant general counsel with headquarters at St. Paul, Minn. In May, 1918, he was again promoted to general solicitor of the Northern Pacific. Shortly thereafter he was appointed assistant to Judge Payne, head of the law department of the United States Railroad Administration. Because of Judge Payne's illness during the time that Mr. Donnelly was in Washington, the latter largely conducted the affairs of that department. Later he returned to St. Paul, because of the illness of Thomas Cooper, then vice-president and land commissioner. Mr. Donnelly, on October 1, 1919, was elected executive vice-president and assumed charge of corporation affairs in St. Paul, in addition to Mr. Cooper's duties during the remainder of the period of federal control. He continued in the same capacity for the Northern Pacific after the termination of federal control. Mr. Donnelly will assume the presidency of the Northern Pacific upon Mr. Hannaford's retirement on November 19.

## Increased Priority for Coal Proposed

WASHINGTON, D. C.

PLANS FOR OBTAINING an increased movement of bituminous coal to the lake ports for transshipment in order to supply the northwestern section dependent upon lake coal with its fuel before the close of the season of navigation, and at the same time to meet the need of consumers, particularly domestic consumers, in Ohio, Indiana and Michigan, that are dependent for coal on the same sources as that from which the lake shipments are made, were discussed at a meeting of representatives of the railroads, the coal operators and public utilities and other coal consumers at Washington on Monday and Tuesday. As a result of the discussion recommendations were made to the Interstate Commerce Commission for several amendments to its service orders pertaining to coal transportation and although no announcement was made of their nature it was expected that the commission would take some action before the end of the week.

The railroads were represented by Daniel Willard, chairman of the Advisory Committee of the Association of Railway Executives, and officials of the Car Service Division of the American Railroad Association, and the coal operators were represented by officers of the National Coal Association. It is understood that a spirit of hearty co-operation prevailed and that it was the unanimous conclusion that in order to obtain an increased coal movement it would be necessary to increase the number of open-top cars devoted to coal transportation, which means further curtailment of the number of open-top cars allowed to shippers of other commodities. The commission has already issued several priority orders for coal but it has also issued a large number of permits for the use of open-top cars for construction materials and other ship-

ments to meet pressing demands, and the facts discussed at the meeting are said to indicate that a greater degree of priority for coal is essential if the demands for coal are to be fully met.

The railroads have about reached the limit of the amount of coal they can transport in the number of cars that have been available for coal and while the lake shipments have proceeded at a fairly satisfactory rate since the issuance of Service Order No. 10, which calls for 4,000 carloads a week for the lakes, it is believed that it will be necessary to continue its operation up to the close of the season of navigation if the demand is to be supplied. Up to September 25 the cumulative lake shipments have been 14,866,000 tons as compared with 18,448,000 in 1919 and 21,665,000 in 1918. At the same time the large amount of coal moved to the lakes has had the effect of reducing the supply of coal available to domestic consumers in Ohio, Indiana and Michigan that are served by the same mines. There have been numerous complaints relative to this matter.



Charles Donnelly

## New York Central Program for Overcoming Equipment Shortage

THE NEW YORK CENTRAL system, which includes 6 per cent of the main line mileage of the United States, owns 277,734 freight cars, or approximately 12 per cent of the entire freight equipment of the country. The work of rehabilitating this equipment and adding to it sufficient new rolling stock to overcome the car shortage was one of the most serious problems which the road faced at the termination



With All Tracks Filled by Decrepit Cars Awaiting Shops for Rebuilding, Long Lines Like the Above Are Set Off the Rails in Adjoining Yards. Scene at American Car & Foundry Plant, Detroit, Mich.

of federal control. Immediately upon the return of the roads, the New York Central lines placed orders for 11,244 freight cars of all classes at a total cost of approximately \$53,000,000. On account of the difficulty in securing material, the delivery of new cars has been delayed and this

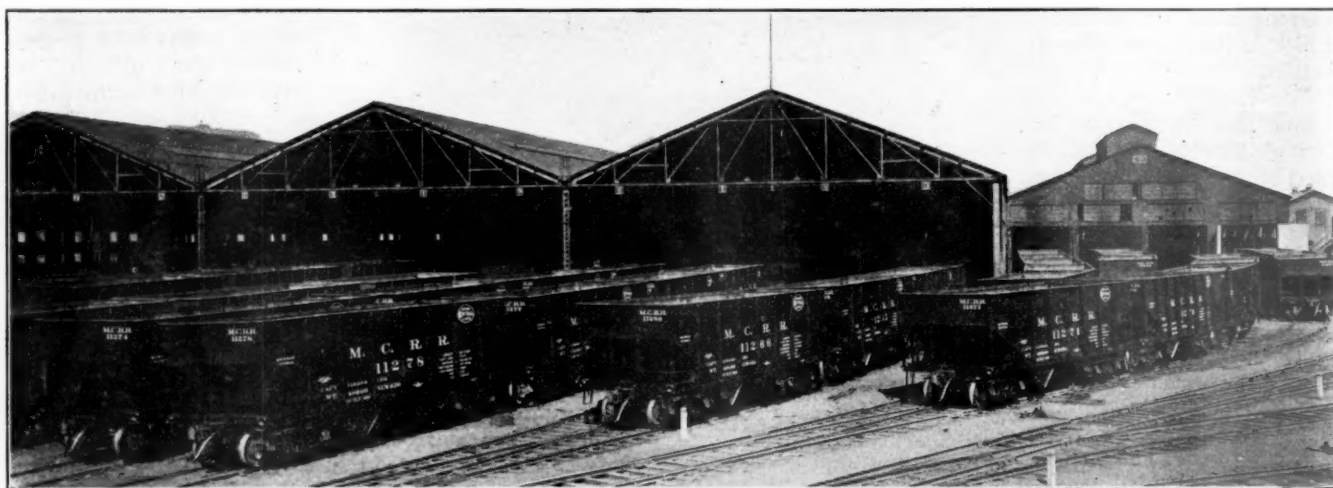
in first-class condition. The contract work was distributed among 15 repair shops. This was an undertaking of even greater magnitude than the building of new cars, as the stripping and rebuilding of existing equipment requires approximately three times as long as building a new car. However, the shortage of material was not such a serious handicap in this work.

The new equipment ordered is now being delivered at a rapid rate. The Pressed Steel Car Company is turning out 20 cars a day at McKees Rocks, Pa. The Merchants Despatch Transportation Company at East Rochester, which is rebuilding 700 refrigerator cars, has reached an output of 15 a day. At Detroit the American Car & Foundry Company is rebuilding 3,000 hopper and gondola cars at the rate of 20 a day.

In carrying on these extensive rebuilding operations, a progressive traction system similar to that used in the construction of new cars has been developed. The cars are brought in for repairs at one end of the shop, the work required is marked by the inspectors and then the cars are moved through the shop bays past the crews, each of which performs a given operation. The rivet heads are burned off with acetylene torches and the whole superstructure torn apart and discarded. As the car passes down the track, the successive rebuilding operations are performed and the car emerges at the other end of the shop ready for painting, after which it is placed into service.

THE CARRIERS cannot overlook a single "bet" which promises to increase their potentialities of service, and thereby their potentialities of revenue.—*Baltimore Sun*.

PUBLIC SENTIMENT.—There is a favorable public attitude toward the railroads, for the first time in many years. The roads are making decided headway thus far in meeting public expectations. They must, however, continue their progress and thereby support the disposition to regard public ownership as definitely out of the realm of feasibility.—*N. Y. Journal of Commerce*.



Group of New York Central Lines' New Hopper Cars Ready for Shipment at McKees Rocks, (Pa.) Plant of Pressed Steel Car Company. Twenty of These Cars Are Being Delivered to the New York Central Lines Each Day from This Plant

made it imperative that an extensive rebuilding campaign be instituted at once.

This work was undertaken with vigor and arrangements were made for carrying on extensive rebuilding operations not only in the company's shops but also in the plants of a number of car builders. During the eight months ending September 1, heavy and medium repairs to 100,418 cars were completed, many being completely rebuilt and all put

A DIRECTORY OF FARMERS' ORGANIZATIONS along the lines of the Delaware, Lackawanna & Western has been prepared by Allan S. Merchant, agriculturist of the railroad. The list shows the names and addresses of the presidents and secretaries of the organizations together with the product in which each specializes. It is purposed in this way to get producers and consumers in direct communication with each other, thus eradicating the commission buyer.



# Figures Show Continuance of Heavy Freight Traffic

## Car Loading Increases and Shortage Reduced—Principle of Equalization in Interchange of Freight Cars Adopted

WASHINGTON, D. C.

REPORTS JUST COMPILED by the Car Service Division of the American Railroad Association show that the volume of freight traffic is holding its own in spite of the increase in freight rates which went into effect on August 26. For the week ending September 4 there was a slight reduction in the number of cars loaded with commercial freight to 947,743, as compared with the highest record made for this year, 985,064, in the week of August 28. The week of September 11 included the Labor Day holiday and the total loading fell to 872,043 cars, but in the week ending September 18, for which the reports have just been received, the total was 983,913, as compared with 994,991 for the corresponding week of 1919 and 970,458 in 1918. Up to July 1 the car loading figures still reflected the effects of the strike, but from July 3 to September 18 the total car loading has been 11,008,219, as compared with 10,697,733 in 1919 and 11,340,621 in 1918. The report follows:

Western district 92.3 per cent and the Southwestern district 96.7 per cent.

### Car Equalization Plan

Thus far this year the policy of car distribution has been in general to build up the supply of cars in each district to approximately 100 per cent of its ownership, as far as that could consistently be done, and the report for September 15 shows that very good progress has been made in that direction as a result of the relocation orders that have been issued, although individual relocation orders will still be necessary in some cases to build up the car supply on individual roads.

In order to maintain the car supply by districts and by individual roads the Advisory Committee of the Association of Railway Executives at a recent meeting adopted a resolution providing for the establishment of a plan of equaliza-

### REVENUE FREIGHT LOADED AND RECEIVED FROM CONNECTIONS

SUMMARY—ALL DISTRICTS; COMPARISON OF TOTALS, THIS YEAR, LAST YEAR, TWO YEARS AGO, FOR WEEK ENDED SATURDAY, SEPTEMBER 18, 1920

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L. C. L.	Miscellaneous	Total revenue freight loaded			Received from connections		
										This year, 1920	Corresponding year, 1919	Corresponding year, 1918	This year, 1920	Corresponding year, 1919	Corresponding year, 1918
Eastern	1920	9,139	2,668	41,613	3,640	8,273	12,314	44,891	102,515	225,053	241,111	230,614	256,859	254,394	254,251
	1919	9,383	2,894	52,795	3,461	8,171	7,059	26,277	131,071	215,194	211,862	217,057	142,823	154,187	184,762
Allegheny	1920	2,971	3,541	61,814	6,653	3,774	17,079	39,480	79,882	215,194	211,862	217,057	142,823	154,187	184,762
	1919	3,598	3,510	61,446	4,287	3,809	12,769	42,644	79,799	211,862	211,862	217,057	142,823	154,187	184,762
Pocahontas	1920	192	267	24,646	770	2,200	205	2,916	7,110	38,306	36,513	40,816	18,556	20,278	25,914
	1919	259	426	22,366	650	2,234	258	124	10,196	36,513	36,513	40,816	18,556	20,278	25,914
Southern	1920	3,127	2,238	26,924	1,501	19,162	3,416	37,016	37,919	131,303	127,077	125,274	72,972	71,696	72,481
	1919	3,247	2,680	25,818	327	19,248	3,217	20,721	51,819	127,077	127,077	125,274	72,972	71,696	72,481
Northwestern	1920	15,364	8,794	11,805	1,591	15,657	49,090	27,943	38,449	169,693	173,170	169,808	71,364	66,628	88,793
	1919	15,313	10,126	10,928	1,301	16,775	46,283	21,229	51,215	169,693	173,170	169,808	71,364	66,628	88,793
Central Western	1920	11,924	12,735	22,459	447	7,011	2,969	31,032	47,920	136,497	140,689	128,283	51,648	49,482	47,526
	1919	12,487	14,077	22,211	343	6,693	3,872	23,527	57,479	136,497	140,689	128,283	51,648	49,482	47,526
Southwestern	1920	4,956	2,693	6,331	122	8,229	346	17,380	27,810	67,867	64,569	58,606	67,239	69,275	741,718
	1919	5,183	2,941	7,956	149	6,691	270	12,845	28,534	64,569	64,569	58,606	67,239	69,275	741,718
Total, all roads	1920	47,673	32,936	195,592	14,724	64,306	85,419	200,658	342,605	983,913	994,991	970,458	672,399	692,757	741,718
	1919	49,470	36,654	203,520	10,518	63,621	73,728	147,367	410,113	983,913	994,991	970,458	672,399	692,757	741,718
	1918	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Increase compared	1919	.....	.....	.....	4,206	685	11,691	53,291	.....	.....	.....	.....	.....	.....	.....
Decrease compared	1919	1,797	3,718	7,928	.....	.....	.....	67,508	.....	11,078	.....	.....	20,358	.....	.....
Increase compared	1918	.....	.....	.....	.....	.....	.....	.....	.....	13,455	.....	.....	.....	.....	.....
Decrease compared	1918	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	69,319	.....	.....

The average daily car shortage (deferred car requisitions) show a further reduction during the week of September 17 to 96,114 for the United States, as compared with 104,790 the previous week and 146,070 for the week ending September 1. Of the total 55,653 were box cars and 23,647 were coal cars.

The freight car accumulations during the week of September 24 amounted to 47,689, which represents practically a normal condition for a year of heavy traffic.

Continued progress in "unscrambling" the freight cars, which had become badly scattered during the war period, is shown by the report for September 15, when 28.7 per cent of the cars were on "home" lines, as compared with 21.9 per cent on March 1. On January 1, 1918, 44 per cent of the cars were on home lines. Of the box cars 17.6 per cent were on home lines; of the refrigerator cars, 46.3 per cent; of the gondola cars, 35.3 per cent; of the stock cars, 36.1 per cent, and of the flat cars, 34.9 per cent.

On September 15 the railroads in the Eastern district had on their lines 100.6 per cent of the number of freight cars owned; the Allegheny district had 100.2 per cent; the Pocahontas district 71 per cent; the Southern district 87.3 per cent; the North Western district 99.1 per cent; the Central

tion between railroads, so that each road, in general, will receive from its connections as many cars as it delivers to them, in accordance with arrangements to be worked out between the roads locally.

The Car Service Division on October 4 issued circular C.S.D.-85 announcing that in accordance with a circular of October 1 issued by the Advisory Committee, the principle of equalization in interchange of freight equipment is effective as between all railroads. The record of interchange dating from September 1, 1920, will serve as a basis in arriving at balances due. The circular prescribes regulations for the plan of equalization as follows:

### Regulations for Plan of Equalization

1. In making equalization effective railroads are required to analyze their interchange currently and make such arrangements as may be necessary locally to effect an interchange movement with their connections.

2. Equalization will apply separately as to types of cars. For this purpose the different types will be understood as follows:

A. Box cars—including ventilated box, furniture and automobile cars.

- B. All open top cars, except flats.
- C. Flat cars.
- D. Stock cars.
- E. Refrigerator cars.

Tank cars will not be considered in equalization.

Note: Ventilated box and automobile cars will not be applied in equalization of box cars where such movements are contrary to any special instructions of the Car Service Division.

Refrigerator cars will be generally subject to special instructions of the Car Service Division.

3. At all terminals where deliveries are made to connections in switching service the roads involved will work out between themselves and maintain a plan of equalization. Where local committees on car service are established their services will be available in case of necessity. Responsibility for maintaining arrangements agreed upon, however, rests with the individual roads.

4. Equalization shall be maintained currently and be handled on weekly balances.

5. Car service rules will be observed in effecting equalization. When forced movement of empties is necessary to effect equalization, or excess over equalization if required by specific orders, the selection of car ownerships shall be in the following order of preference:

1. Cars of destination line.
2. Cars of direct connections of destination line.
3. Cars which it is known can properly be used by the destination line for loading according to Car Service Rules.
4. Cars of delivering line.

6. The Car Service Division will from time to time give such special directions as may in its judgment be necessary to relocate cars for traffic or other requirements.

7. In case of disagreement as to equalization between railroads appeal may be made to the Car Service Division, whose settlement of the matter will be final. It is expected, however, that such means will be adopted only as a last resort, pending which time current deliveries in equalization shall be maintained.

8. It is of the utmost importance under the equalization plan that interchange reports to the Car Service Division on Form CS 22 shall be accurately compiled and promptly forwarded.

#### Status of Outstanding Orders of Car Service Division

All orders requiring movement of a definite number of cars daily, or as a total, will remain in effect until the order is completed and cars reach destination road, unless the orders are changed or cancelled on specific instructions in each case.

Outstanding orders requiring straight equalization will be cancelled or modified only by special notice to that effect in the individual case. Orders requiring deliveries in excess of equalization will continue in effect until changed or cancelled.

#### Summary of General Conditions

The Car Service Division has issued the following summary of general conditions as of September 29:

**Box Cars**—The requirements continue heavy at all points, especially in the West. Grain loading is below last year, and the demand for cars for immediate loading continues to be in excess of the supply. Cars are being moved west in volume, and additional orders are being placed to the fullest possible extent. The volume of perishable traffic which will be offered for transportation during coming season is expected to be unusually heavy. The loading of ventilated box cars with dead freight must be confined to points in direct line to home roads.

**Automobile Cars**—This equipment must be moved, loaded or empty, to the central automobile manufacturing district for protection of automobile loading, demands for which are again on the increase.

**Stock Cars**—Demand so heavy for protection of stock loading and for building up supply on Western lines for movement of range cattle and sheep, that utmost efforts must be made to move cars to owning lines, or in accordance with specific orders issued for necessary relocation.

**Refrigerator Cars**—Demand for refrigerators continues heavy throughout eastern, middle west and western territory. Fall fruit movement now at peak. Dairy and packing house products continue to be offered in heavy volume, and generally in excess of the ability to supply cars currently. It is of utmost importance that both loaded and empty refrigerators be given preferential handling, and likewise important that the loading of refrigerator cars be confined to freight requiring refrigeration. Consignees should be impressed with the importance of promptly releasing refrigerator cars.

**Open Top Cars**—The upward trend which the production of bituminous coal has taken during the past few weeks reflects the improved car supply which has been made available by extraordinary efforts on the part of all railroads in speeding up the movement of coal cars. However, the exigencies of the coal situation necessitated the issuance of Service Orders 15 and 16 effective September 19 containing practically the same provisions as original orders 7 and 9 curtailing the distribution of open top cars to commodities other than coal. The conditions in the steel loading districts are reported as somewhat improved. In fact, a progressive decrease has been made in the amount of steel stored since July 1, and the present effort of the railroads is to reduce this storage to normal. Permits are still being issued to cover the supplying of coal carrying cars for commodities other than coal, where such movements cannot be protected under Service Order 15. Only material urgently needed for the public welfare is being considered in the issuance of these permits.

**Flat Cars**—Requirements for this type of equipment continues to exceed the supply. Cars are now being moved in greater volume to the lumber and stone regions where demands are exceedingly large.

This type of equipment should be promptly released and moved expeditiously in the territory in which it is badly needed.

#### Car Service Circulars

The Car Service Division has issued a supplement to its circular CCS-54 saying that the Interstate Commerce Commission advises that the preference in car supply accorded by its Service Order No. 16 for the protection of the loading of coal for necessary daily use of utilities privately owned but engaged in public business, shall be understood to apply to like utility services of the War Department at its various posts, camps and stations.

Circular CSD-82, issued by the Car Service Division, says that numerous instances have come to the attention of the Interstate Commerce Commission and to the Car Service Division of small lots of freight being billed at carload rates apparently for the purpose of forcing movement of an empty car to a particular consignee, thereby promoting certain advantages in car supply during periods of car shortage.

"This in its simplest terms is a form of conspiracy," the circular says, "and a device to obtain an unjust preference, and one to which the railroads should not be a party. Therefore railroad agents and others concerned should be instructed to decline to sign bills of lading, or to place a car, for small lots of freight offered for shipment at carload rates where the intent to control movement of the car is evident. Furthermore, should a car be received by a consignee under such circumstances, its further use for outbound loading of such consignee is prohibited, and the consignee should receive his car supply in the usual manner."



# Annual Meeting of the National Safety Council

## Steam Railroad Section—Meetings Deal Largely with Co-operation and Means of Assisting Educational Work

THE NINTH ANNUAL CONGRESS of the National Safety Council opened at the Auditorium, Milwaukee, Wis., on September 27, continuing in session until October 1. The sessions of the Steam Railroad Section of the Congress began on September 29, three sessions and one roundtable discussion being held on that and the subsequent days of the Congress.

R. C. Richards, chairman of the Central Safety Committee of the Chicago & North Western, and president of the Council, opened the Congress at 10 o'clock Monday morning, the entire first general session being devoted to the consideration of council business. The first session of the Steam Railroad section was opened by Robert Scott, superintendent of insurance and safety of the Atlantic Coast Line and chairman of the section. After the consideration of various officers' and committees' reports, W. M. Jeffers, general manager of the Union Pacific, addressed the safety men extemporaneously, emphasizing the value of and need for safety supervision and urging fair treatment for railroad employees, in return for which he said the men would reciprocate.

### Safety and Time Service

Webb C. Ball, general time inspector of the Bureau of Railroad Time Service, presented a paper at this session on "Safety and Time Service." The purpose of Mr. Ball's paper was to give an account of the ways and means by which the standard system of time service has been developed. He said in part: "The 'railroad standard watch' of today is justly recognized as one of the most important 'safety appliances' required in train operation. It is called upon to perform a service of safety every hour and minute, both day and night and it is as constant and necessary as regular pulsations of one's heart and lungs. Railroad people who carry standard watches and submit the same for periodic inspection as a rule appreciate their responsibility and accordingly live up to the rules of the service. On most lines four men on every train are subject to prescribed watch inspection rules—the engineer, the fireman, the conductor, and the rear flagman, and as a further safety measure, some lines require towermen, train despatchers, station masters, and section foremen to carry standard watches."

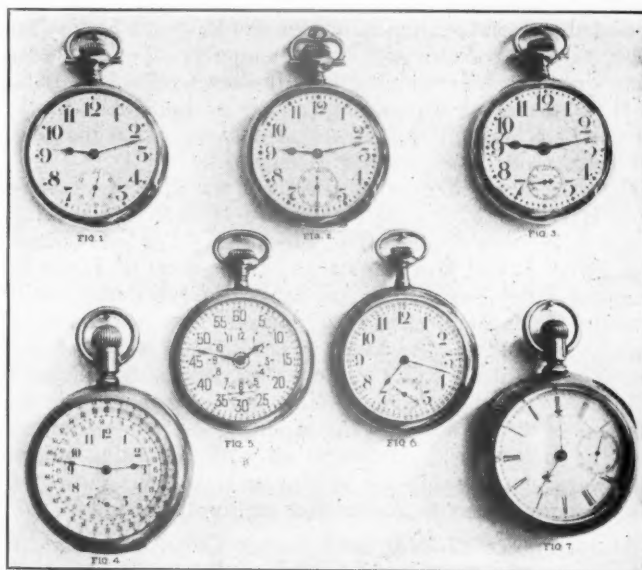
The duties of the watch inspectors, of whom there are several thousand throughout the United States, and the development of the present system of watch inspection were then described by Mr. Ball in detail.

Continuing he said: "The difference between the minimum standard railroad watch today and the best grade 30 years ago in itself reveals the improvement that has been made in the mechanical construction of watches during the last few years, an improvement which can be accepted as the watchmakers' contribution to the safety first movement. For their co-operation in making possible standardization of grades, special credit must be given the watch manufacturers. In January, 1918, the number of railroad watches scheduled was reduced from 85 to 22. It is therefore reasonable to expect that the few grades retained will receive special attention and further improvement in their finish and adjustments."

"Another very important factor of safety is the dial, that part of the watch which quickly and surely reveals the correct time to the engineer, the conductor and other trainmen. As this information is often required at night when lights are dim and obscure, it is needless to emphasize the importance of dials that give the hour and minute without any confusion of fantastic figures or freakish designs.

"The figures should be 12 plain upright Arabic figures to indicate the hour points and the 12 five minute division points in the dial circle should be distinct squares, diamond or round dots, with the four intervening minute dashes not quite so heavily marked but distinct for easy reading. Dials that serve their purpose of safety, are illustrated on the accompanying chart prepared to compare the standard safety dials shown in Figures 1, 2 and 3 with the freak confusing unsafe dials shown in Figures 4, 5 and 6.

"Another feature about the standard dial is the position of the stem or winding crown. This should be opposite the 12, not as with a hunting case watch, opposite the 3. The use of such closed-face models that have been converted into open face watches without changing the position of the stem, has proved disastrous to life and property as a result of false



A Comparison Between "Safe" and "Unsafe" Railroad Watch Dials. Figures 1, 2 and 3 Show Standard Dials. Figures 4, 5 and 6 Show Freak Dials. Figure 7 Shows the Old-Style "Side Wheeler" Watch.

reading of the time indicated. A serious error of 15 minutes can easily result from a confused reading of a side-wheeler watch dial such as is shown in Figure 7.

"The Official Bureau of Railroad Time Service was chartered in the United States and Canada in 1918. This bureau has its principal office in Cleveland, Ohio, with branches in Chicago, Ill., San Francisco, Cal., and Winnipeg, Man., and has a present organization of about 60 people schooled in this work. The purpose for which this bureau is formed is not for profit or any merchandising whatsoever, but to reduce the element of danger in the operation of railroads, caused by inaccurate timepieces, and to increase the factor of safety to the public by general supervision; \* \* \* to keep records of performance under uniform rules and regulations; to appoint and educate local watch inspectors; to see that railroad watches and clocks are properly inspected; to make and maintain a standard system of watch and clock rating and regulation for railroad employees and railroad companies and in general to exercise careful supervision of railroad time service.

"This bureau is governed by a board of five trustees who serve from three to five years."

### Co-operation With Railroad Labor Organizations

The second session was opened with an address on "Co-operation With Railroad Labor Organizations" by Isaiah Hale, safety superintendent of the Atchison, Topeka & Santa Fe.

Mr. Hale's address recounted his experiences in endeavoring to interest officers of the railway brotherhoods in safety work and in this connection he urged the safety men to co-operate with the editors of the official publications of the larger railroad brotherhoods by supplying copy for Safety departments in these publications. In this manner safety work can be made more effective, being directed, as it will be, largely through the employees' organizations, he said. Mr. Hale closed his address with an appeal for the spreading of optimism and good cheer as an important factor in safety work.

J. A. McNally, safety agent of the Wabash, in presenting a paper on "Shop Accidents" at this session, outlined many preventive measures and "Don'ts" for mechanical department employees, urging among other things a daily inspection of all tools in tool rooms and a weekly inspection of all tools in private lockers.

Samuel O. Dunn, editor of the *Railway Age*, also addressed the second session of the Steam Railroad Section on "The Economic Value of Railway Safety Work." Mr. Dunn's address is reproduced in full elsewhere in this issue. C. H. Baltzell, superintendent of the St. Louis-San Francisco at Fort Smith, Ark., addressed this session on the general subject of Transportation Accidents.

The roundtable discussion was held on Thursday afternoon, Harry A. Adams, of the Bureau of Safety of the Interstate Commerce Commission, presiding. The discussions were led by J. C. Clark, assistant to the general manager, in charge of safety, on the Oregon Short Line; Harry J. Bell, formerly regional supervisor of safety of the Northwestern Region, and Marcus A. Dow, general safety agent of the New York Central. The questions of the use of statistics in safety work, their comparability as between roads, the adoption of new standards for reporting accidents, competition in safety work, the advisability of permitting prizes and awards to be made for safety work, and the duties of safety committee members were thoroughly discussed.

### Maintenance of Way and Motor Car Accidents

The last session of the Steam Railroad Section was held on October 1, Arthur Ridgway, assistant chief engineer and safety officer of the Denver & Rio Grande, presenting the first paper. Mr. Ridgway said in part:

"Because of the general character of that class of men which furnishes most of our track labor and because of the particular kind of work demanded of such men, a high probability of accident among maintenance of way forces is apparently a perfectly natural assumption. Relatively high probability of accident among these workmen is, however, not a fact, for reliable figures show conclusively that the per cent injured among maintenance of way forces is considerably lower than among railway employees as a whole. For example, a record of two years shows an average of 26 per cent less injuries per 100 men employed in this department than the average of all the railroad forces combined. Again, the same two-year period shows that in the maintenance of way forces there were 62 per cent less injuries per 100 men employed, or less than half as many as among all the other so-called unskilled railroad laborers. While this statement is not indicative of the relative immunity from injury of maintenance of way forces as compared with other industrial pursuits, it does show that insofar as railway employees as a whole are involved, the maintenance of way man, contrary to expectations, is decidedly less likely to be injured than the average railroad worker.

### Motor Car Accidents

"To be of any practical value, an analysis of the subject under discussion would seem to demand a segregation of motor car accidents from other kinds in the maintenance of way department. Comparing the two general classes we find that motor car accidents comprise about 14 per cent of the total, and all others, therefore, about 86 per cent. The motor car accidents may be conveniently grouped into four typical classes and their respective frequency compared thus:

"Motor-car accidents are classified as follows: Collisions with trains, 37 per cent; men falling off cars, 32 per cent; derailments, 26 per cent; collisions with other cars, 5 per cent. Collisions with trains are due to speed and carelessness; men falling off because of speed, carelessness, and limitation in design of cars; derailments are due to speed, carelessness, and limitation in design of cars; collisions with other motor cars may be charged wholly to speed.

"There are thus shown to be three principal contributing factors of which one, speed, is common to all four groups. Perhaps excessive speed in the use of cars can be very largely, if not entirely, attributed to that human instinct common to all mankind which may be described as an almost uncontrollable passion to utilize to the utmost all power and authority vested in the individual.

"As to the limitations in the design of cars, much may be said. Lightness is the first requisite, for to be of any use at all workmen's cars must be so limited in weight as to be easily handled on and off the track by the number of men they are designed to carry. On the other hand, this very limitation in weight militates against immunity from derailment, since many derailments may be ascribed to light weight as a contributing cause. Again, limitation in weight is inseparable from restricted dimensions, which necessarily curtail seating and tool-carrying capacity, both in magnitude and distribution throughout the space available therefor. In fulfilling the fundamental essentials, the designer is also handicapped in properly disposing of the matter of hand holds and grabirons, while provisions for the various forms of tools, separate and apart from their weight, is indeed a serious study. Moreover, the adoption of either the direct or indirect method of drive carries with it a sacrifice of some of the advantage of the other.

"The carelessness factor in most motor car accidents is manifested in disorderly seating of men, hasty and thoughtless loading of tools, inattention to car and contents while under way, and wanton disregard of the danger of imperfect flag protection.

"Turning now to a consideration of other maintenance of way accidents, we find the most frequently recurring accidents listed in their order of frequency to be as follows:

Struck by flying objects.  
Use of tools not defective.  
Eye injuries.  
Struck by falling objects.  
Use of tools in hands of others.

"Among the flying objects which carry destruction in their path may be mentioned spikes not firmly started before a full swing blow of the maul is delivered, nuts cut off track bolts with a chisel or knocked off with a maul, and articles thrown or falling off passing trains.

"The unskilled use of non-defective tools such as picks, claw bars, shovels, adzes and track jacks contributes a very large share of resultant injuries.

"Eye injuries originate largely from mushroomed chisel heads, improperly tempered cutting edges, dust and metal scale.

"Many of the injuries resulting from falling objects are incurred during the loading, unloading or otherwise handling materials of one sort or another.

"The erratic swinging of picks and mauls and the careless manipulation of shovels are responsible for a very



considerable number of injuries inflicted by tools in the hands of others.

"Of all the injuries suffered by maintenance of way employees, more than one-third—35.6 per cent to be exact—are to be found in injured hands and feet, in the proportion of about two in the hands to each one in the feet. A most prolific source of injury to the fingers is in the use of the claw bar when pulling inside spikes. Perhaps the claw is worn and the foreman hasn't taken the trouble or had time to send the bar in for reforming; or perhaps the workman does not use care in getting a good bite on the spike; or perchance the spike head is snapped off, but whatever the reason, a wild hard pull often sends the handle end of the car crashing down on the opposite rail with only a human finger to absorb the impact. Another deep rooted origin of injury to the hands is to be observed in the many slivers, jagged edges and rough surfaces with which maintenance of way materials abound. Again, maintenance of way materials are of necessity weighty and large in size. Stored in piles or nested in transportation they present no opportunity for a hand hold. The slightest opening between units serves as an invitation to a workman to thrust in his hand and the outcome is often a crushed finger.

"Occasionally a man cuts his foot with an adze or strikes it a glancing blow with a maul, but by far the majority of foot injuries occur through the dropping of some heavy object on the toes. Very often this is the result of some spontaneous action of one or more of his co-workers without advance warning. In the handling of railroad materials, the units of which require the combined effort of two or more men, lack of unity of action or movement is almost sure to result in some sort of accident.

"The only absolute cure for excessive speed in the use of motor cars is to render high speed impossible in the design of cars, and notwithstanding the disadvantage of limiting the speed of all cars to a predetermined rate, safety interests apparently demand such limitation.

"Thorough co-operation with manufacturers of cars in the details of design will accomplish much towards a universally satisfactory type of car, and will surely open a way for a judicious choice of the lesser of any two evils of design.

"There is but one wholly effective remedy for curing the most pernicious practice of moving motor cars without flag protection, and that is to require such movements to be conducted under the standard train order system. We are forced to the conclusion, however, that because of the delicate questions involved, this plan is impossible of adoption and that there remains the only alternative of enforcing a rigid requirement of adequate flag protection. To accomplish the desired results, this requirement must be exacted under the most stringent discipline and even trivial violations thereof subjected to extremely careful scrutiny. Perhaps there is no more effective means to the end sought than in justifying these severe disciplinary measures by emphasizing without stint the constantly impending danger involved in unprotected car movement. The unsystematic loading of men and tools, primarily due to simple thoughtlessness, can generally be eliminated by patient and specific admonition.

"The most potent instrument in combating the persistent menace of other maintenance of way accidents is available in the form of a prudently administered campaign of education; in fact it is about the only recourse. There is in this suggestion no intended implication that these men of brawn are necessarily of inferior mentality. It means simply that thus far no educational opportunities have been available. Briefly stated, they have never been told."

#### Safety Work of the Interstate Commerce Commission

The work of the Bureaus of Safety and Locomotive Inspection of the Interstate Commerce Commission was de-

scribed in detail at this session by W. P. Borland, chief of the Bureau of Safety.

Mr. Borland said that approximately 1,000,000 freight cars and 25,000 to 30,000 passenger cars, and 25,000 or more locomotives were inspected annually by the two bureaus. He presented a table which showed that in these inspections, the percentage of defective passenger cars in service to the total number inspected was 2.85 in 1915; and that there was a steady decline annually until 1919, when the per cent of defective passenger cars was 0.39, less than one-half of one per cent. The decline in the number of defective locomotives, he said, was from 4.06 per cent in 1915 to 1.84 per cent in 1919. The per cent of defective freight cars in 1915 was 4.77 and in 1919, 3.70. Reports received to date for 1920, according to the statistics presented by Mr. Borland, indicate a slight increase in the amount of defective rolling stock of all classes.

Mr. Borland also discussed the enforcement of the safety appliance and the hours of service laws and told of the work of his men in the investigation of all accidents and in the examination of plans for new types of block signals, automatic train stops and other safety devices.

C. M. Talbert, director of the Department of Streets and Sewers, City of St. Louis, Mo., also presented a paper on "Public Safety" at this session.

#### Election of Officers

The following men were elected officers of the Steam Railroad Section at its last session: T. H. Carrow, supervisor of safety of the Pennsylvania, Philadelphia, chairman; Peter Groome, safety agent of the Union Pacific System, vice-chairman and A. V. Rohweder, supervisor of safety of the Duluth, Missabe & Northern, Duluth, Minn., secretary.

### Cast Iron for Locomotive

#### Cylinder Parts

**F**REQUENT RENEWAL of cylinder parts of locomotives results in greatly increased cost of maintenance to the railroads, and consequently the quality of the cast iron entering into their construction is a matter of paramount importance, particularly from the standpoint of wear. These parts include piston-valve bushings, piston-valve packing rings, piston-valve bull rings, cylinder bushings, piston packing rings, and piston-head or bull rings. It was found that ordinary high-silicon cast iron gave unsatisfactory wear, particularly in modern superheater locomotives, and the tendency has been toward a harder and stronger iron.

At the request of the U. S. Railroad Administration the Bureau of Standards has investigated the mechanical, chemical and microscopical properties of a number of packing rings furnished with service-mileage records, as well as arbitration-test bars, chill-test specimens, and miscellaneous samples from different manufacturers. All of this material was cast iron such as is used for the various cylinder parts. At the same time a review was made of the previous work and specifications on this subject, to ascertain as far as possible the practices of the different foundries and to suggest such revision of existing specifications as would be warranted by the results of the present and of earlier investigations.

The results of the tests are to be published in Technologic Paper No. 172 of the Bureau of Standards, by C. H. Strand, associate physicist.

Conclusions are drawn and recommendations made as follows:

1. On the basis of tests made by inspectors of the U. S. Railroad Administration and this bureau, which were substantially in agreement, it is concluded that air furnace or so-called "gun iron" is more uniform in character and on the

average of somewhat better mechanical properties than cupola iron. The latter, however, often equals or even excels in mechanical properties the specimens of air-furnace iron tested in this investigation. The sulphur content of the air-furnace irons examined seldom exceeded 0.06 per cent, while the cupola irons varied in sulphur content from 0.10 to 0.17 per cent.

2. The findings of the American Railway Master Mechanics' Association with respect to correlation of laboratory and service tests are confirmed in the present investigation. It was impossible, except in a very general way, to find any correlation between the quality of the iron as developed by laboratory tests and the mileage obtained in service. This is explained by the fact that many other factors besides the quality of the iron enter into consideration in the service results, namely, design, lubrication, method of handling the locomotive, topography of the country, character of water used in locomotive, etc. The ring from foundry B, which gave the exceptionally good service of 93,000 miles, showed no unusual properties in laboratory tests. It is for the reasons cited above that the conclusions and recommendations of this paper are based essentially upon the results of laboratory tests.

3. The present specifications of the American Railway Master Mechanics' Association are somewhat lax in the requirements for mechanical properties. It is recommended that the transverse strength requirements of the 1¼-inch arbitration bar be increased from 3,200 to 3,500 lb. for castings one-half of an inch or less in thickness, and from 3,500 to 3,800 lb. for castings over one-half of an inch in thickness. It is further recommended that the minimum deflection requirements for both cases be increased from 0.09 to 0.11 inch. The division line of the casting thickness is changed from five-eighths of an inch of the American Railway Master Mechanics' Association, to one-half of an inch in order to conform to the recognized standards of the American Society for Testing Materials.

4. It is preferable to leave the chemical composition and the melting process used to the manufacturer, depending for the most part on the mechanical tests, and of these primarily upon the transverse test. The existing specifications allow a maximum of 0.70 per cent phosphorus and 0.12 per cent sulphur; there are no developments in this investigation which would warrant a revision of the maximum permissible amounts of these elements.

Acknowledgment is given to Capt. S. N. Petrenko and T. W. Greene for the mechanical tests and also to S. Epstein for the metallographic work. The co-operation of the chemistry division of the Bureau of Standards in making the chemical analyses is likewise acknowledged.

The paper also includes a proposed specification for cast iron cylinder parts.

## The Cost of a Railway Strike in France

By Lee G. Lauck.

THE MINISTER OF FINANCE attributed to the recent railway strike in France the blame for having dampened the enthusiasm of the subscribers to the last loan, and of having in a great measure, hindered its success. That was not the only misfortune caused by the strike, and the following information will suffice to prove it.

The transportation crisis was considerably aggravated by the strike of last February, which has greatly contributed to the present economic unrest in France. This strike lasted officially for four days, from February 27 until March 2, except on the Paris-Lyons-Mediterranean, where it continued for a week. The appended table shows the number of cars which were loaded on the different systems during the

week which preceded the strike; then for the week while the strike was on; and finally for the weeks which have followed the termination of the strike.

TABLE I

Roads	Week of Feb. 20 to Feb. 26, 1920 (Before the strike)	Week of Feb. 27 to March 4, 1920 (Week of strike)	Week of March 5 to March 11, 1920 (After the strike)	Week of March 12 to March 18, 1920 (After the strike)	Week of March 19 to March 25, 1920 (After the strike)
Total for the Eastern, Midi, Northern, Etat and Orleans	178,813	124,612	141,753	163,052	171,933
Paris-Lyons-Mediterranean ...	50,490	5,881	30,294	48,510	51,429

Thus the strike, even though it failed to have the general character that its promoters wished for, caused a decrease of 83.35 per cent in the number of cars loaded on the P-L-M system, and of 31 per cent on the five other systems taken together. Elsewhere the disorganization of traffic resulting from the strike, has continued to make itself felt, long after the return to work. It was only at the end of the third week after the strike that the roads were able to load a number of cars somewhere equal to the average loaded before the strike. But there remain all the arrears, representing the difference between the cars loaded to the time when the loadings have again become normal, and the sum total of the normal loads. This deficit is around 111,000 cars for the first group of systems, and around 75,000 for the P-L-M alone. The latter estimates that to overcome this deficit, it would be necessary to load 500 cars more than normal, which is a difficult thing to do, over a period of 150 days. Consequently on this system the strike will have made its effect felt for nearly five months. The same situation arises when a comparison is made of the number of loaded cars received during the weeks indicated below.

TABLE II

Roads	Week of Feb. 20 to Feb. 26, 1920 (Before the strike)	Week of Feb. 27 to March 4, 1920 (Week of strike)	Week of March 5 to March 11, 1920 (After the strike)	Week of March 12 to March 18, 1920 (After the strike)	Week of March 19 to March 25, 1920 (After the strike)
Total for the Eastern, Midi, Northern, Etat, and Orleans	93,135	46,317	83,624	95,585	98,544
Paris-Lyons-Mediterranean ...	16,731	20,069	11,647	14,210	18,216

The decrease is 87.63 per cent on the P-L-M, and 53.53 per cent on the other five systems taken together. As for the cars received loaded, less than two weeks after the strike the various roads were able to re-establish their traffic with the same intensity that it had before the strike. The difference which elapsed for the return of normal service for the loaded cars and for the cars that were to be loaded is explained by reason of the strike having held up a certain number of loaded cars which had only to be sent on their way when it had terminated.

Furthermore, the roads are finding themselves under the necessity of rendering still more severe certain restrictive measures, either suspending all traffic in merchandise in certain directions, or limiting the acceptance of goods under the category of merchandise which benefits by priority privileges. The transportation of fertilizer especially, has suffered a considerable setback during this period, which is one of the chief reasons why the French farmers protested with so much energy against the strike.

The strike contributed greatly to prolong the delay in the repair of locomotives and cars, and this delay is the chief cause of the transportation crisis.

The preceding figures show better than all other argument the disastrous reaction of such a strike on the economic life of the country. The ruinous consequences which have entailed, prove obviously the necessity of preventing the return of it, by a formal law, sustained by effective penalties.





*A Place Where the Low Voltage Switch Machine Facilitates Traffic*

## Centralizing the Operation of Outlying Switches\*

Remote Control of Switches Means Increased Track Capacity,  
Safety and Economy in Train Service

By J. E. Saunders,

Assistant Chief Engineer, Union Switch and Signal Company, Swissvale, Pa.

THE DEVELOPMENT of the low voltage switch machine during the last few years has made it possible to avoid much of the delay which has heretofore retarded train movements at outlying switches. It is interesting to note that the signal engineer has functioned as an operating officer in the solution of this as well as many other transportation problems and his work in this case will make it more evident that signal engineering goes beyond the visual indications of the development of the art in fixed signals alone. The operator or other attendant at a station is now enabled to control the position of outlying switches in such a way as to allow trains to enter or leave passing sidings without stopping or even slowing down beyond speeds which are safe for taking the turnouts.

The power operation of switches was formerly confined to locations where crossing protection or traffic density, combined with the proximity of a number of switches to be handled, warranted a centralized control such as can be secured by the installation of an interlocking plant. The cost of transmission and losses served as limitations of the distance from the point of control from which switches could be operated satisfactorily. Improvements in batteries during recent years, together with developments in signal apparatus, have made it possible to operate switches electrically at any distance from the point of control by installing a primary or a storage battery at the switch and controlling the supply of electrical energy to the switch-operating mechanism by means of a high resistance line relay requiring but very little current for its operation. Such control is not inconsistent with up-to-date high voltage electric interlocking practice.

### Saving and Safety to Be Secured

The operation of outlying switches electrically costs less than one-quarter cent per switch movement. Authorities

differ as to the cost of stopping a train, but it can safely be assumed to be at least \$1.50 for a 50-car freight train and at least 50 cents for an 8-car passenger train. On this basis it can be seen that even though a busy outlying switch may be thrown 100 times a day, its operating cost of 25 cents is inconsiderable in comparison with the cost of train stops and delays, which are avoided by the electrical control and operation of the switch in question.

The introduction of an eight-hour work day has also caused a considerable increase in the cost of getting trains over the road. Shorter freight divisions or lower tonnage engine ratings can be avoided only by the substitution of machines for man-power. The automatic block constitutes a saving over the manual block on account of lower cost of operation. The low voltage mechanism at outlying switches is but another means of reducing the cost of train operation.

Power-operated switches are safer than are those which are manually operated. A track-circuit control prohibits the switch points being moved while engine or cars are on or adjacent to the switch. Signals may be made to control train movements over the switch and at the same time provide additional safety in insuring that a train taking the siding has passed the fouling point before another train can proceed on the main track.

The remote control of outlying switches and signals is not an experiment. Low voltage mechanisms operating switches have been in service on some of the largest railways in America for several years; the signals used are the same as have been in service for over 20 years. The degree of protection provided may be varied to suit local operating requirements. The layout may consist of the simplest form, with a single switch movement, a single track circuit, and three signals, or a complete system embracing approach, route, and detector locking handled from interlocked levers, the movement of which is governed by electric locks.

In general, first consideration should be given to the

\*Abstract of paper by J. E. Saunders before the Kansas City Sectional Committee, Signal Division A. R. A.

application of low voltage switch mechanisms to the manually operated switches which are most frequently used. Next should come switches which are so located that difficulty is experienced in starting or accelerating trains. A number of factors may enter into the question as to which of the switches on a particular railroad or on a certain division of a railroad should be power operated. It may be that, due to variance from the theoretically best locations of passing sidings, one certain stretch of track forms the choke in getting trains over the railroad. An aggravated situation of this sort can be relieved materially by facilitating the entry to and egress from such a section by applying the low voltage switch and lock movements to its terminating switches. It should be borne in mind that the switch to be operated may be located immediately adjacent to or at any distance from the point where the control is to be exercised and that arrangement may be made for an operator, station attendant, or even trainmen themselves, to determine the position of the electrically operated switches.

#### Where to Apply Low Voltage Control

A train taking siding to be met or to be passed by another train under the old system had to make several stops. All of these except one can be eliminated by installing low voltage switch movements. An advantage which is in addition to the avoidance of train stops is that of introducing subdivided blocks without any additional cost whatsoever. In manual block territory, a train may occupy the main track between the block station and the signals at an outlying switch while an opposing or following train may be allowed to proceed from the next block office without the use of a special clearance form, as complete signal protection is provided. Such an arrangement is particularly valuable when two trains are to meet a third at a given station.

Yard entrance switches at freight division terminals are the source of many delays, especially on single track railways. Many companies have found automatic signal protection at such locations advisable on account of traffic congestion. One or more low voltage mechanisms will put the control of these switches in the hands of the yardmaster or his representative and reduce delays to a minimum. A junction switch or the end of double track, even though located at some distance from the station or block office, may cease to be a cause for train delays if provided with an electric mechanism and protected by signals. Switches which are of sufficient importance to be operated by men located on the ground continuously can be handled just as well and at a considerable saving in expense by utilizing power movements.

All of the advantages of complete interlocking control at a station and in addition subdivided blocks with automatic signal protection can be obtained by supplementing existing mechanical or power interlocking of switches and signals located near the tower or office by the use of electric switch movements and signals at outlying switches. Electro-mechanical interlocking of lap sidings lends itself especially to such an addition. All switch functioning and train movements within station limit switches are then entirely within the control of the operator or other station attendant.

#### How Remote Control Is Accomplished

There are many ways in which to control switches receiving energy for operation from local batteries. The protection to be given trains varies with their class and speed as well as with local conditions, all of which have bearing on the refinements warranted in a low voltage switch installation. The most simple arrangement would be to provide a pole changing circuit controller such as a knife switch, two wires between the point of control and the track switch, a relay, switch and lock mechanism, and battery. Although having the advantage of simplicity, such a layout cannot be recommended in the majority of cases. Switches operated by an agency under the

control of someone not a part of the crew of the moving train should be protected by signals. Except where the switch is always in plain view of the operator, electric detector locking is a prerequisite of a safe installation. Ordinarily, approach locking is desirable. It will be appreciated that there is a wide range of possible application from which to select the one most suitable or desirable for a given combination of traffic switches and points of control.

Provision should be made for the manual operation of remotely located power switches in case of emergency. The problem is somewhat different from that of switch movements at a 110-volt interlocking plant, because in case of the latter, even though a maintainer or helper be not available, it is possible to secure assistance from the leverman. On the other hand, since there is no limitation of the distance from a station that a low voltage mechanism can be controlled, it may not be feasible for the trainman to secure assistance in case of battery failure or other interference with the normal functioning of the switch movement. The situation has been very easily taken care of by providing a hand crank which is ordinarily kept locked in a box, the railroad company's standard switch lock being used. Removal of the crank from this box is made to open the battery circuit so that as long as the crank is in use, there is no chance of the motor receiving current. The hand crank can be applied at an opening in the switch mechanism case, ordinarily kept closed and locked by means of another switch lock, and which can be opened without exposure of any of the interior parts of the mechanism. The latter should at all times be secured against tampering by means of signal department padlocks, as it would not be advisable for trainmen to have access to the movements.

#### Signals and Interlocked Circuit Controllers

There is no reason why the electric signals which are standard on the road concerned cannot be used in connection with outlying switch protection. These signals can be made to function entirely in accordance with established power interlocking practice. The number of blades to be used and the limitation of their control can be determined by the individual road.

Where levers in an existing interlocking machine are not available for the control of outlying switch movements the small table machine, known as an interlocked circuit controller, can be applied. This controller is made up of any number of units each of which consists of a roller, carrying contact bands, moved by a small crank and handle, and yet restrained in movement by a dog which engages a quadrant attached to the controller. The controllers can be supplied either with or without indicators and with or without electric locks. Such a device has a distinct advantage over a knife switch for the control of outlying switch movements because an operator will hesitate and think before throwing over one of the levers, which might not be the case were a knife switch used. In other words, the interlocked circuit controller is a distinct piece of apparatus and is associated in the operator's mind only with the idea of the switch and signal control.

#### Summary of Advantages

The advantages of the power operation of remotely located switches are:

1. Increase in safety to traffic due to better control of train and switching movements at outlying locations.
2. Decrease in operating expense due to the elimination of train stops at remotely located switches with a resultant saving in fuel, wear and tear of brake and other equipment, and time of trainmen. The number of train orders may be reduced and trains kept under the direction of the dispatcher without stopping for orders. A greater average mileage per hour may be secured because trains can advance farther before taking siding to be met or passed.



## General News Department

**The Cumberland Division** of the Baltimore & Ohio reports for Sunday, September 26, a total freight movement of 8,041 cars, in 128 trains, the largest divisional movement for one day on record.

**The Railway Business Association** will move its office on November 1 from New York to Philadelphia, Pa. The new office of the association will be in the Liberty building at Broad and Chestnut streets.

**At a fire which swept the wharves** of the Galveston Wharf Company, Galveston, Tex., on September 30, the Atchison, Topeka & Santa Fe lost 17 freight cars while two freight cars were badly damaged.

**The Veteran Employees' Association** of the Chicago, Milwaukee & St. Paul, composed of employees who have served the road for not less than 25 years, held its third annual convention at Milwaukee, Wis., on September 24.

**A course on Traffic Management** is being offered this term by the Graduate School of Business Administration, Harvard University, Cambridge, Mass. This course is designed primarily for shipping interests and is open to the public free of charge.

**Atlanta (Ga.)** has established a city planning commission, one of the members of which is Charles A. Wickersham, president of the Atlanta & West Point. This commission is to submit plans for street improvements, relief of traffic congestion and development of housing projects.

**The "Old Guard"** of the Southern Railway, noticed in this column last week, is to have a further accession of 514 members, that number of employees having recently come into the class who have completed a quarter century of service. The total membership now is 4,405.

**The Atchison, Topeka & Santa Fe** has leased the Buffalo Northwestern and began operation of this property as a part of its Plains division on September 30. The Buffalo Northwestern is 52 miles long, extending from Waynoka, Okla., where it connects with the Santa Fe, westward to Buffalo, Harper County.

**Forty empty cars** in an eastbound Chicago, Milwaukee & St. Paul freight train broke away on a mountain grade near Piedmont, Mont., on the night of September 29 and smashed into a gravel train standing at the Piedmont station, killing six men, including one of the engineers and a brakeman. Four persons were seriously injured.

**The automatic train stop** of the Regan Safety Devices Company, in use on the Chicago, Rock Island & Pacific, and described in the *Railway Age* of April 30, 1920, page 1293, is being tried on the Great Eastern Railway of England, and press despatches report elaborate trials before a large company of railroad men and others, on September 30.

**Two masked bandits** stopped Illinois Central train No. 2, northbound, at a block signal at Tucker, Ill., 50 miles south of Chicago, on the night of September 24, entered the mail coach, bound five clerks, looted the registered mail sacks, and at Kensington made their escape. The robbery is the third of its kind on the Illinois Central in the last five months.

**An agreement to promote Canada's trade** with the East Indies has been made under which the Merchant Marine, which is operated by the Canadian National Railways and the British India Steam Navigation Company, will each place

an equal number of cargo steamers in operation between the East Indies and Canadian ports. This service will be in full operation by November 1.

**An advance in pay**, averaging 25 per cent and retroactive to May 1, has been granted by the Canadian National and the Grand Trunk Pacific to clerks, station agents and other station employees to the number of 7,000. This action is announced at Ottawa, following the conclusion of negotiations between the railroads and committee of the Canadian Brotherhood of Railroad Employees.

**New York Central** engine No. 999, which established the world's record in May, 1893, when it drew the Empire State Express at the rate of 112.5 miles an hour, covering a mile in 32 seconds, has now been placed on a side track at Depew, N. Y., where it will be dismantled and scrapped. Charles Hogan, now manager of the department of shop labor of the New York Central, handled the throttle on the record-breaking run.

**The steel industry looks to the railways** to keep it in a healthy, normal condition for some time to come, in the opinion of Charles M. Schwab, as stated in a recent interview. He pointed out that normally the railways use about one-third of all the steel produced. For the past five years railway purchases have fallen far below this average, and Mr. Schwab believes that a steady production of steel for several years will be necessary to make up this deficiency, even if orders from other sources fall off.

**The New York Sectional Committee** of the Signal Division of the American Railroad Association will hold a meeting at Hotel McAlpin, 34th street, New York City, on Thursday evening, October 21. The subject will be Signal Wire and the discussion will be opened by J. W. Hackett, formerly supervisor of signals on the New York Central. He will supplement his remarks with motion pictures. All persons interested in signaling are invited to be present, and members are requested to give their experience with signal wire.

**The Employees Magazine** of the Atchison, Topeka & Santa Fe for October calls the attention of employees to the securities of that road for investment. The article outlines the financial condition of the road, gives lists of the various classes of stocks and bonds, showing the market prices at which they may be bought at the present time, and also the present rate of return; and follows with a statement of what each security has paid in the past. An inquiry blank appears at the end of the article for the use of those who wish further information or desire to purchase any of these securities.

**The seventeenth annual convention** of the Maintenance of Way Master Painters' Association was held at the Fort Shelby Hotel, Detroit, Mich., on October 5, 6 and 7. The program was about evenly divided among papers and reports on methods of handling tools and equipment; the proper facilities for housing, transporting and safeguarding the men; and paints or coatings designed to accomplish certain results. About 35 members and friends of the association were in attendance. A report of such portions of the transactions of this meeting which are of interest to readers of the *Railway Age* will appear in next week's issue.

**The Long Island Railroad** carried 28,073,826 passengers in the 103 days of the holiday season from Decoration Day to Labor Day, an average each day of 270,936. C. D. Baker, assistant general superintendent, in a general notice to employees, congratulates them "on the very efficient service rendered in handling the unprecedented passenger travel of the past summer. The

volume of traffic has been far in excess of anything we have heretofore been called upon to undertake. The spirit of the men has been most gratifying and the management joins with me in expressing our appreciation and pride in the establishment of a record without parallel in the history of railroading in this country."

A statistical analyst is wanted by the Interstate Commerce Commission, and the United States Civil Service Commission announces examinations for the position until November 9. Salary, \$3,600 to \$4,200 a year. Applicants must have had at least five years' experience in railroad statistics, of which at least two years must have been responsible experience in compilation and analysis of statistics and car service movements covering the railroad systems of the country as a whole or in large groups. Experience in directing the work of a considerable force of clerks during this period is also essential. Also, applicants must submit a thesis upon "How can statistical data be made a means of increasing the efficiency of car service?" Applicants must be 30 years and not over 54 years old.

Miss Dorothy E. Holloway, daughter of William H. Holloway, chief clerk in the office of the division freight agent of the Pennsylvania Railroad at Williamsport, Pa., has been awarded a Pennsylvania Railroad scholarship in the University of Pennsylvania, a scholarship established to commemorate the work done during the World War by the "Division for War Relief" of Pennsylvania Railroad women, department No. 3; and also as a memorial to the men of the freight traffic department of that railroad who gave their lives in the war. Miss Holloway was the winner in a competition open to sons and daughters of present or deceased employees of the freight traffic department of the Pennsylvania, and to the sons and daughters of the members of the aforementioned women's war relief organization.

#### New England Railroad Club

The October meeting of the New England Railroad Club has been postponed from October 12 to October 19. Gerrit Fort, vice-president of the Boston & Maine, will address the meeting on the subject of the recent increase in passenger and freight rates and its relation to the public.

#### New York Railroad Club

The New York Railroad Club will hold its next meeting at 8 p. m. on October 15, at 29 West 39th street. W. S. Wollner, general safety and welfare agent of the Northwestern-Pacific and secretary of the Pacific Railway Club at San Francisco, will speak on "The Human Element in Railroading." Many railway officers have watched with interest the increase of personnel and welfare work in other large industries, and it is expected that a lively discussion will follow the proposal that such work be undertaken on a large scale by the railways.

#### "The Pullman Company Does Not Benefit"

In answer to criticism directed at the Pullman Company by the traveling public because of the collection of the surcharge of 50 per cent on Pullman and parlor car fares, that company has inserted advertisements in the Chicago daily newspapers, headed "The Pullman Company Does Not Benefit."

The text of the advertisement reads as follows:

"The purpose of this announcement is to correct a general misunderstanding that The Pullman Company benefits by the surcharge of 50 per cent recently imposed on Pullman passengers.

"The Pullman Company receives no part of this surcharge.

"The surcharge was imposed solely to increase the passenger revenue for the railroads.

"It simply requires an additional service of The Pullman Company for which it receives no compensation whatsoever."

#### The Question of Subordinate Officers Reopened

The Interstate Commerce Commission has announced a reopening of its investigation, undertaken in accordance with the terms of the transportation Act, as to the classification of "subordinate officials" and has announced a hearing at Washington on October 1 before Commissioners Clark, McChord and Daniels, for the purpose of determining what modification, if any, shall be made in the list of subordinate officers within the meaning of

Section 300 to 313 of the Transportation Act; also upon the question whether the regulations governing the making and offering of nominations for appointment as members of the Labor group of the United States Railroad Labor Board shall, as a result of any modification that may be made in the list of subordinate officers be modified or supplemented.

#### Liquidation Staff of the U. S. R. A.

As indicating the extent of the work required to settle up the affairs of the Railroad Administration, which for 26 months had charge of the operation of the railroads, its staff of officers and employees on August 20 included 1,195 persons and its monthly payroll was \$250,576. Only a small reduction in force has been made during the period since the railroads were relinquished, although the staff is now only about half as large as it was immediately prior to the return of the roads. On March 1, according to a statement issued by Director-General Hines, the force was reduced to 1,223 officers and employees, 1,420 having left the service of the central and regional administrations by March 1. In June, 1919, the total force was 2,725 and the monthly payroll was \$575,428. On February 20, 1920, it was 2,612 and the monthly payroll was \$570,078.

#### Milwaukee-Muskegon Railway & Navigation Company Project

The Milwaukee (Wis.) Association of Commerce, through its board of directors, recently adopted a report submitted by its transportation committee endorsing the project of "bridging Lake Michigan" by way of Muskegon, Mich., thereby giving Milwaukee another connection with the eastern trunk lines. Briefly, this project provides for the construction of adequate terminals for a car-ferry, and storage and warehouse purposes, and the purchasing and operating of break-bulk steamers and car-ferries between Milwaukee and Muskegon, where connections can be made with the Michigan division of the Pennsylvania, the Grand Trunk, the Pere Marquette, the Grand Rapids, Grand Haven & Muskegon Electric and the Michigan Railways. The cost of the entire project, including terminals, steamers and car-ferries, is estimated by the committee at \$4,880,000. The annual cost of operation is estimated at \$2,135,260, and the annual revenues which should accrue at \$2,821,500.

#### Canadian Pacific Memorials

Bronze memorial tablets are to be placed by the Canadian Pacific in a number of its principal offices and stations to perpetuate the memory of the 11,062 employees of the road who fought in the great war. These tablets will be placed in more than 20 prominent buildings; and for the company's stations at Montreal and Winnipeg imposing bronze statuary groups have been designed as tributes to the heroism and self-sacrifice of these men. The tablet was designed by Archibald Pearce, of the engineering department of the road, and the statue is by Coeur de Lion MacCarthy, of Montreal. Of the Canadian Pacific men who joined the forces, 1,096, or nearly 10 per cent of the whole number, were killed. The inscription on the tablets reads:

This tablet commemorates those in the service of the Canadian Pacific Railway Company who at the call of King and country left all that was dear to them, endured hardship, faced danger and finally passed out of sight of men by the path of duty and self-sacrifice, giving up their own lives that others might live in freedom.

Let those who come after see to it  
That their names be not forgotten.

#### Packers' Control of Stockyards

The Federal Trade Commission on September 16 transmitted to the Attorney-General a report objecting to the plan presented to the Department of Justice by the packers for divesting themselves of their holdings in public stockyard market companies by the sale of properties to F. H. Prince & Co., of Boston, and the formation of a new company to acquire the authorized stockyards. Objection was based on the ground that the long-time stockyard relations of F. H. Prince & Co. with the packers have been such that the plan as outlined will not result, in the opinion of the commission, in a divorcement of the stockyards from packing interests and that the plan as outlined will result, in the opinion of the commission, in an infraction of anti-monopoly laws greater and more serious than the existing infraction. The commission



says this plan would amalgamate into one holding company 15 of the principal stockyards, in which the different packers now hold varying interests; whereas they now have majority control of but 11 of the 15.

### Invest Your Money Carefully

In connection with the distribution of back pay to employees of the Chicago, Rock Island & Pacific in accordance with the decision of the United States Labor Board, Carl Nyquist, secretary and treasurer of this road, cautions all employees against the unsound investment of this money. He calls attention to the fact that the back pay, under the decision, for all railroad employees will exceed \$50,000,000 and that that of the Rock Island alone, averaged for all the employees of the road, represents a payment of between \$70 and \$80 to each individual. "It is evident, therefore," says Mr. Nyquist, "that swindlers, fake oil stock operators, etc., will advance in attack on this very appreciable sum of money." He calls the attention of the employees to reputable stock and bond houses, to banks and other agencies offering securities which pay a generous rate of interest. He states that railroad stocks and bonds offer to them an investment with a splendid return, which, from the standpoint of security, is second only to the securities of the United States Government.

### An Appeal to Shippers

J. B. Cummings, superintendent of the Chicago, Burlington & Quincy at Ottumwa, Iowa, recently addressed a circular letter to shippers outlining the steps which railroads and railroad employees are taking to provide satisfactory transportation with the existing inadequate facilities and requesting, as a result of these facts, the further co-operation of shippers. Mr. Cummings' letter said, in part: "The shippers in your territory can increase the car supply materially by releasing cars more promptly and making them available for another load. With this end in view, instructions have been issued which provide that the railroad agent at your station will be given advance notice of the arrival of cars, the agent will notify the consignee of the probable time that the train will arrive with the car, and if the consignee will then make immediate arrangements by starting to unload the car the day it arrives, and complete the unloading just as quickly as possible, it will enable us in many cases to pick the car up and move it to some station or into the terminal and it can be reloaded within 24 hours."

### Accident Investigations—April, May, June

The fourth quarterly issue of the Summary of Accident Investigations, prepared by the Bureau of Safety, of the Interstate Commerce Commission, is for the months of April, May and June, 1920. Seventeen accidents are described in the pamphlet, and they occurred at the places and on the dates shown in the following list:

Road	Place	Date (1920)
Missouri Pacific	Leeds, Mo.	April 4
Atlantic Coast Line	Jesup, Ga.	April 7
Baltimore & Ohio	Nova, Ohio	April 8
Southern Railway	Ellenwood, Ga.	April 15
Louisville & Nashville	Bay Minette, Ala.	April 16
Chicago & N. W.	Lamberton, Minn.	April 29
Oregon-Washington R. & N.	Huron, Ore.	May 3
Southern Pacific	Bertha, Ore.	May 9
Southern Railway	Tallapoosa, Ga.	May 9
Maryland & Pennsylvania	Woodbrook, Md.	May 22
St. Louis-San Francisco	White Oak, Okla.	May 31
Lehigh Valley	Van Etten, N. Y.	May 31
New York Central	Schenectady, N. Y.	June 9
Delaware & Hudson Co.	Gansevoort, N. Y.	June 14
Baltimore & Ohio	South Chicago, Ill.	June 14
Boston & Albany	Worcester, Mass.	June 15
Wabash Railway	Tilton, Ill.	June 28

Leeds, Ellingwood and Van Etten were derailments; all of the others were collisions.

### Seeking Owners of a Million Tons of Coal

Owners of 1,000,000 tons of coal, confiscated and consumed by the railroads during the bituminous miners' strike last winter, which has not been paid for, are being sought by Marion J. Wise, manager of the Department of Materials and Supplies of the Railroad Administration. In the confusion of distribution and re-routing during the strike, the records showing the origin of the shipments were lost, and bills for it have not been rendered.

In the last two months Mr. Wise has made payment for about 266,000 tons of coal confiscated in this manner by the railroads, but new claims approximating about the same amount have been filed.

In a large number of instances the coal-laden cars have gone over many railroads. Some of this coal was confiscated by one railroad, and then turned over to another railroad, and not infrequently, to a third. All of the approved claims are in process of settlement. In many instances, differences have arisen as to the price. The Railroad Administration has taken the position that the fixed prices of the Fuel Administration will be paid, except in instances where it was sold on a bona-fide contract. A large part of the tonnage that is not yet paid for is involved in controversies of this kind.

### Glenn E. Plumb Answers Senator Harding

"Labor," the paper published by the Plumb Plan League, contained recently a statement by Glenn E. Plumb, replying to a speech by Senator Harding, Republican candidate for President, before railroad men at Marion, Ohio, on September 13. The speech contained some rather mixed-up statements as to the provisions of the transportation act. Senator Harding, in asserting that the act did not provide for permanent government guarantee of dividends on railway capital, went further and stated that the act placed a limit on these dividends and did provide for a maintenance of rates for a period of six months after March 1. He also said that the guarantee of a 5½ per cent earning was limited to the period of transition of six months. Mr. Plumb objects to these statements and then proceeds to make some broad statements of his own regarding the transportation act, which he still insists constitutes a 6 per cent guarantee to the railroads. He also refers to a payment of \$630,000,000 from the Treasury "to make good the guarantee in the first six months of private operation," although the amount guaranteed has not yet been ascertained and very little of it has been paid. This amount, he says, is "almost as much as it cost for the entire 26 months of federal control."

### Southern Pacific Safety Report

The Southern Pacific continues to record a reduction in casualties to employees. A comparison of casualties reportable to the Interstate Commerce Commission for the first six months of 1918, 1919 and 1920 shows:

	Killed	Injured
1918	29	1,436
1919	29	1,239
1920	20	1,129

PER 1,000,000 LOCOMOTIVE MILES	Killed	Injured
1918	1.09	53.91
1919	1.23	52.58
1920	0.77	43.69

PER 1,000,000 MAN-HOURS	Killed	Injured
1918	.49	24.03
1919	.48	20.64
1920	.33	18.83

In the face of a large increase in the number of automobiles in use in the territory traversed by its lines the following reduction was shown in grade crossing casualties:

	Killed	Injured
1918	23	85
1919	17	80
1920	13	61

### Proposed Joint Exhibit for Minor

#### Railway Mechanical Associations

A joint meeting of members of executive committees of seven of the smaller mechanical associations was held at the Hotel Sherman, Chicago, on October 4, for the purpose of considering the question of holding the conventions of the several associations at one place during one continuous period. This plan was proposed at a joint meeting of the International Railway General Foremen's Association and the Association of Railway Supply Men, held during the recent convention of the former organization, as outlined in the *Railway Age* of September 17, page 496.

At the meeting on October 4, the plan was presented with the view of reaching some conclusion, but no definite action was

taken, since a number of the representatives present had not been given full authority by their respective associations. However, a resolution was passed to the effect that another meeting would be called at the Hotel Sherman, Chicago, on December 6. Each association invited to attend will be asked to send one representative with full power to act at this joint executive meeting, at which meeting the entire matter will be considered and, if possible, a plan will be worked out for the holding of the several conventions as proposed.

### St. Louis Railway Exposition

The first annual Railway Exposition of St. Louis (Mo.) will be held at the Railway Young Men's Christian Association, St. Louis, October 25 to 30, inclusive. The idea of this meeting was sponsored by the Board of Directors of the Railroad Y. M. C. A., who obtained the co-operation of the St. Louis Railway Club. A committee composed of about 200 railroad officers, brotherhood leaders, office employees and railroad supply men was chosen from these two organizations to formulate and carry out plans. So far approximately 45 railway supply companies have signified a desire to display their appliances.

The exposition was conceived with a view of bringing together the manufacturers and users of various railway appliances and daily demonstrations of the appliances exhibited will be held. The daily program for the exposition includes two noon meetings daily, one for employees at the Railroad Y. M. C. A. and one for officers and office employees at the Hotel Statler. In the afternoons 40-minute periods of technical lectures, demonstrations and educational motion pictures will be held in the Y. M. C. A. Auditorium. The evening meetings will be devoted to exhibitions, addresses and social activities.

### Special Trains to Suit All Tastes

A Sweet Potato Special is the latest novelty in the traveling educational line, a train carrying a company of state specialists on a two-weeks' trip through the eastern part of South Carolina to inform the people how best to harvest, handle and market sweet potatoes. The car is in charge of a horticulturalist and a specialist in marketing. Twenty towns are to be visited.

Alabama, Indiana and Texas are keeping up with the times by means of traveling lectures on, respectively, power farming, improved home devices and a "health program" to promote the extinction of mosquitoes. The Alabama power farming enterprise is carried out with the co-operation of the International Harvester Company, and the train started out on the Atlanta, Birmingham & Atlantic on September 7. Motion pictures are used and the Alabama State Harbor Commission does some advertising on the same train.

The Indiana campaign is to stimulate interest in farm home conveniences and the train is fitted out with "numerous devices for making rural homes as convenient and attractive as those in the cities." It is operated by Purdue University and began its trips on the Erie Railroad September 27. The Texas health enterprise is in charge of the sanitary engineer of the State Board of Health, and at numerous towns on the St. Louis-South Western the exhibition car was visited by hundreds of people.

The agricultural instruction train of the Canadian Pacific—a seven-car train—includes a nursery car, in which competent nurses entertain and care for small children while the mothers are listening to lectures in the motion-picture car. There are three of these lecture cars in the train, one for farmers, one for farmers' wives and one for boys and girls.

### H. M. Curry Addresses St. Paul Signal Engineers

H. M. Curry, general mechanical superintendent of the Northern Pacific, in a talk before the St. Paul (Minn.) Sectional Committee meeting of the Signal division of the American Railroad Association at St. Paul, on September 18, emphasized the importance to the railroads and to the country of every employee doing each day's work a little better. Furthermore, he said that every employee is entitled to a square deal. In this connection attention was called to an article in the *Railway Age* of August 20 (page 330) entitled "Frisco President Enlists Employees in Personal Appeal."

Mr. Curry said that men should assume responsibility, take quick action and eliminate unnecessary letter writing; that the success railroads have in keeping trains moving depends to a great extent upon the resource, "pep" and energy an employee puts into his work.

Men complain today about lack of opportunities and this, Mr. Curry continued, should be discouraged, because there was never a better time than the present for men with ambition and enthusiasm to reach the top—in railroading as well as in any other line. The trouble today is that too many people have a "grouch" because they have to work for a living; they seem to think that life is unbearable because of that fact. When men begin to assume such an attitude the result can readily be seen. We should feel that we are living in the best country in the world and under the most favorable conditions; each should grasp his opportunities and not cater to anarchistic tendencies.

### Miles Per Car Per Day on the Pere Marquette

FRANK H. ALFRED, president and general manager of the Pere Marquette, in his campaign to obtain a maximum standard of 24 miles per car per day on his line, recently addressed a circular to employees stating, without exaggeration or color, the actual conditions prevailing on the Pere Marquette and asking in the light of these facts for increased activity and better co-operation. Mr. Alfred said, in part:

"In a letter to you on August 1, I called attention to all the Pere Marquette employees to the very poor showing made in the movement of cars for the month of June, which averaged only 16.2 miles per car per day—a very costly operation. I then appealed to you in the public interest as well as on the substantial grounds of individual welfare for a better record for the month of August.

"The figures for August have just been compiled. There has been some improvement made in the movement of cars, that is, the average car mileage per day has been raised from 16.2 for June to 17.94 for August, which is about 10.74 per centum better operation.

"We are on the way towards the mark set—24 car miles per day—but we are still 'far away from the terminal.'

"We handled on an average 22,967 cars with a daily car mileage of 411,947. Had we attained the 24-mile per-car per-day standard set, we would have provided the same transportation service with 17,164 cars and thereby effected an economy of \$5,222.70 a day at the 90 cent per car per diem rate, or \$161,903.70 for the entire month of August—a saving worth while."

"We have set a low maximum standard of 24 miles per car per day. The Association of Railway Executives agree on 30 miles per car per day as the standard.

"The Boston & Maine, with approximately the same mileage as the Pere Marquette, with approximately the same average haul, and bearing the same relationship as a transportation unit for the Northeastern New England states as does the Pere Marquette for the state of Michigan, attained a performance of 20.18 miles per car per day for the week ending August 13. This is 11.24 per centum better than the Pere Marquette record. What is being done on the Boston & Maine can be done on the Pere Marquette.

"We individually and collectively as employees of Michigan's intimate home railroad owe this to the people of Michigan. Upon our joint efforts, more than any other single factor, depend the prosperity and welfare of the state of Michigan, for ours is the chief transportation artery that comes to the farms and towns of Michigan's multiplied counties. Individually and collectively, we are contributing to or militating against the success and prosperity of Michigan directly as we provide the state with good or indifferent transportation service."

### Car-Service Men Wanted—Salary \$5,000

Circular No. 559, just issued by the United States Civil Service Commission, announces examinations for the position of "service agent," for the Interstate Commerce Commission, at salaries from \$3,600 to \$5,000; applications to be received until December 28. The entrance salary within the range stated will depend upon the qualifications of the appointee as shown in the examination and the duty to which assigned. On account of the needs of the service, papers will be rated promptly as received. The duties of appointees will lie in the Bureau of Service, and will require experience in railroad service, particularly with respect to the supply and distribution of cars and the movement of traffic. Appointees will each be assigned to a particular geographical territory, and will serve as chairmen of terminal committees at important points, and will have executive charge of the functioning of all such committees. They will be responsible for a full and complete knowledge of service conditions within their territories at all times. They will be expected to keep the commission advised as to service conditions and make recommendations as to the exercise of the mandatory powers of the commission, and, when directed by the commission, to give di-



rections to carriers as to car service. Applicants must have had at least seven years' experience in railroad service, two years of which must have been responsible experience in connection with car service. Experience of a generally similar character as an inspector for a state railroad or public service commission or with the Interstate Commerce Commission, or in a responsible capacity with a traffic organization or a board of trade or other shippers' organization, may be taken as equivalent of railroad experience.

Applicants must submit with their applications a thesis of not less than 500 nor more than 2,000 words in length on the subject "How can terminal or gateway committees facilitate the movement of traffic in times of congestion or car shortage?" Also, a draft of report to the commission, upon the assumption that as a service agent the competitor has received instructions to proceed to some important railway gateway with which he is familiar and investigate the causes and extent of a severe congestion of traffic at such gateway, and to make recommendations for the clearing up of the situation. Applicants must have reached their thirtieth but not their fifty-fourth birthday.

### Railway Earnings for July and Seven Months

A deficit of \$10,427,000 for the month of July is shown in the Interstate Commerce Commission's compilation of revenues and expenses of 187 Class I roads and 15 switching and terminal companies for the month of July and the first seven months of 1920. In July, 1919, the roads had a net operating income of \$77,000,000. For the seven months' period there was a deficit of \$1,138,000, as compared with a net operating income in 1919 of \$233,000,000. The deficit in July, however, is largely accounted for by the inclusion in the expenses of that month of \$39,141,889 of retroactive increased wages. Deficits are shown for the roads of the Eastern, Pocahontas and Southern districts for July, while the Western roads had a net operating income of \$10,725,000 after taking into account over \$9,000,000 of back pay. The commission's summary is as follows:

Item	July		Seven Months	
	1920	1919	1920	1919
1. Average No. of miles oper...	235,694.26	234,472.54	235,128.58	234,217.99
<b>REVENUES:</b>				
	Dollars	Dollars	Dollars	Dollars
2. Freight .....	355,026,239	306,514,025	2,210,071,936	1,918,940,589
3. Passenger .....	123,383,927	113,725,352	690,468,572	657,438,747
4. Mail .....	7,916,079	4,166,808	109,046,034	29,969,900
5. Express .....	14,397,870	7,618,528	89,518,617	61,022,064
6. All other transportation ..	13,460,646	11,788,060	80,672,296	68,535,712
7. Incidental ..	13,456,680	11,113,439	81,840,126	72,005,178
8. Joint facility—Cr. ....	624,478	566,181	4,136,776	3,835,354
9. Joint facility—Dr. ....	132,933	212,251	1,210,782	1,205,782
10. Railway operating rev...	528,132,986	455,280,142	3,264,543,575	2,810,541,762
<b>EXPENSES:</b>				
11. Maint. of way and struct. ..	99,929,869	66,857,388	550,832,789	437,846,444
12. Maint. of equipment ..	138,198,670	96,521,194	848,036,082	669,535,379
13. Traffic .....	6,564,851	4,304,736	37,908,722	26,749,658
14. Transportation ..	246,644,618	177,180,023	1,523,978,548	1,219,800,475
15. Misc. operat. ....	5,716,667	4,205,214	34,077,924	26,870,845
16. General .....	15,186,093	10,353,220	89,936,521	71,774,600
17. Transport. for invest.—Cr. ....	467,468	529,963	2,116,319	3,555,158
18. Railway operating exp...	511,773,300	358,891,812	3,082,654,267	2,449,022,243
19. Net rev. from Ry. oper...	16,359,686	96,388,330	181,889,308	361,519,519
20. Railway tax accruals ....	22,951,912	16,008,728	155,101,774	108,147,378
21. Uncollect. railway rev...	61,194	54,121	586,804	419,782
22. Railway operating income. (D) ..	6,653,420	80,325,481	26,200,730	252,952,359
23. Equip. rents (Dr. bal.) ..	2,180,110	1,997,392	16,233,345	11,496,083
24. Joint facility rent (Dr. bal.) ..	1,594,459	1,098,597	11,106,203	8,357,451
25. Net of items 22, 23 & 24 (D) ..	10,427,989	77,229,492	(D) 1,138,818	233,098,825
26. Ratio of operating expenses to operat. revs. per cent. ....	96.90	78.83	94.43	87.14

(Cr. Credit.  
(D) Debit.

Federal lap-over items settled during the month are included in the above compilation for those roads that have

indicated that estimates were not included for substantially all unaudited corporate items. To compare the earning power of roads in 1920, it should be noted that corporate war taxes and organization expenses are not included in the 1919 returns; that the revenues of all roads for seven months of 1920 include approximately \$50,000,000 back mail pay and that, in some cases, increased wage accruals, resulting from decision No. 2, by the United States Railroad Labor Board, retroactive to May 1, were not charged to operating expenses, while in other cases estimates of May, June and July accruals were charged to July expenses. The amounts of estimated increased wage accruals charged into July expenses, so far as reported, are: Eastern district, \$21,895,292; Pocahontas district, \$2,351,968; Southern district, \$5,814,845; Western district, \$9,079,784; United States, \$39,141,889. The amount of the war taxes included in July, 1920, is \$3,596,796 and for period March to July, 1920, \$16,507,744.

### Modifications in Prices in Interchange Rules

The Mechanical Section of the American Railroad Association has issued circulars S III-166 and S III-168 announcing changes in the labor rates for repairing foreign cars and in the maximum amount of labor chargeable to cars under Rule 120. Circular S III-166 reads as follows:

Since Supplement No. 3 to the 1919 Rules of Interchange was prepared and approved, the labor rates paid by the railroads to employees engaged in car repairs have been increased. Therefore, effective September 1, 1920, the rates to be charged for labor repairing foreign cars shown in Supplement No. 3, 1919 Rules of Interchange, effective same date, are modified as follows:

Freight Car Code.—Rule 101, Item No. 172, labor rate for ordinary car repairs; changed from \$1.00 to \$1.20 per hour. Rule 107, Item No. 443, labor rate for repairing and testing steel tanks of tank cars, changed from \$1.25 to \$1.45 per hour.

Passenger Car Code.—Rule 21, Item No. 19, labor rate on lubrication; changed from 70 cents to 90 cents per hour. Rule 21, Item No. 20, labor rate for repairing passenger equipment cars; changed from \$1.10 to \$1.30 per hour.

These labor charges, in addition to including the actual labor cost of performing the work, include the following items of indirect expense: Wages of foremen, work inspectors, clerks, laborers, etc., working on freight repairs.

Proportion of the expense of operating power plant and of wages of shop or gang foremen, shop clerks, etc., whose time is not charged direct to freight repairs.

Shop switching, including repairs, depreciation, interest, taxes, fuel, lubrication, water, other supplies, fuel station and enginehouse expenses, wages of enginemen and firemen, switch crews and switch tenders.

Proportion of salaries and expenses of G. S. M. P. and M. clerks, S. M. P. and M. and clerks, master mechanics and clerks and general foremen.

Circular III-168 increases the limits for labor in Rule 120, as shown in Supplement No. 1 to the 1919 Rules of Interchange, issued March 1, 1920, to conform with the increase in the labor rate for car repairs, as shown in Supplement No. 3 to the 1919 Rules and Circular No. 166, effective September 1, 1920:

Rule 120. Repair limits for labor:

#### REFRIGERATOR CARS

Wooden, with trucks of less than 60,000 lb. capacity.....	\$108.00
Wooden, with trucks of 60,000 lb. capacity and over.....	180.00
Wooden, with trucks of 60,000 lb. capacity and over, equipped with metal draft arms extending beyond body bolster, continuous metal draft arms, transom draft gear, metal center sills, or steel underframe .....	270.00

#### HOUSE AND STOCK CARS

Wooden, with trucks of less than 60,000 lb. capacity.....	45.00
Wooden, with trucks of 60,000 lb. capacity and over.....	108.00
Wooden, with trucks of 60,000 lb. capacity and over, if equipped with metal draft arms extending beyond body bolster, continuous metal draft arms, transom draft gear, metal center sills, or steel underframe .....	225.00
All steel, or steel superstructure frame with steel underframe.....	315.00

#### GONDOLA AND HOPPER CARS

Wooden, with trucks of less than 60,000 lb. capacity.....	45.00
Wooden, with trucks of 60,000 lb. capacity and over.....	108.00
Wooden, with trucks of 60,000 lb. capacity and over, if equipped with metal draft arms extending beyond body bolster, continuous metal draft arms, transom draft gear, metal center sills or steel underframe .....	180.00
All steel, or steel superstructure frame with steel underframe.....	270.00

#### FLAT CARS

Wooden, with trucks of less than 60,000 lb. capacity.....	45.00
Wooden, with trucks of 60,000 lb. capacity and over.....	72.00
Wooden, with trucks of 60,000 lb. capacity and over, if equipped with metal draft arms extending beyond body bolster, continuous metal draft arms, transom draft gear, metal center sills, or steel underframe .....	108.00

In view of the fact that the Rules of Interchange as revised at the Annual Meeting of the Section held at Atlantic City, June 9 to 16, 1920, will be issued in such a short time, no additional supplements will be issued to the 1919 Code.

## Traffic News

The Minneapolis Traffic Club will hold its eighth annual dinner at the Radisson Hotel, Minneapolis, Minn., on the night of October 21.

The railroads have declined the request of local political organizations of the District of Columbia that reduced fares be made for the benefit of persons who desire to return to their homes in the states to vote.

The Pacific Railway Club devoted its meeting on October 7 to a discussion of means of co-operation between shippers and railroads. K. M. Nicoles, chairman of the Railroad Association's commission on car service, and Hal M. Remington, chairman of the Interstate Commerce Commission's terminal committee, were scheduled to be among the speakers.

### Coal Production

The total output of soft coal during the week of September 25 is estimated at 11,817,000 net tons, according to the weekly bulletin of the Geological Survey. This figure represents the largest production in any week since last January. The rate per working day was 1,969,000 tons. Production during the first 228 working days of this year has been 392,747,000 net tons, about 13½ million tons less than that for 1917 and a little over 44 million tons less than that for 1918, but 51½ million tons ahead of that for 1919. A general resumption of work in the anthracite region brought the total production there for the week up to 1,650,000 tons, or within 168,000 tons of the output during the last week before the strike. The bulletin refers to a general improvement in car supply. The lake movement fell off sharply during the week ended September 25. The cumulative lake movement from the opening of the season now stands at 14,866,000 tons, as against 21,665,000 in 1918 and 18,448,000 in 1919. The movement to tidewater again declined slightly during the week and the decrease was reported in the tonnage of soft coal passing the Hudson gateways for New England by rail.

### Western Passenger Schedules Restored

Several western roads have restored pre-war passenger schedules and have accelerated some trains.

The Southern Pacific put into service the "Sunset Express" on October 1, between San Francisco and El Paso, Tex., and reduced the running time between the two cities by approximately five hours. New trains are established between Los Angeles and Santa Barbara and between Los Angeles and Phoenix. The "Lark" and the "Seashore Express" are restored to their old schedules.

The Western Pacific has resumed through service between San Francisco and Chicago, the "Scenic Limited" being run for the first time since its discontinuance under the federal administration. From Salt Lake east it runs over the Denver & Rio Grande and the Chicago, Burlington & Quincy.

The Chicago & North Western plans to restore the "Chicago-Los Angeles Limited"; and the Atchison, Topeka & Santa Fe will restore the old schedule on its "California Limited," cutting its running time four hours. The Chicago, Rock Island & Pacific will also reduce the running time of the "Golden State Limited" between Chicago and Los Angeles.

**APPRENTICESHIP IN FRANCE.**—As a means of providing for the present shortage of skilled labor in France, a law has been promulgated providing for the creation of technical classes for youths under the age of eighteen employed in works and factories. Employers themselves have the right to establish classes for their hands, but where this is not done the classes must be instituted by the chambers of commerce or by professional groups with funds provided partly by the state. There is a general feeling that the state should not be permitted to monopolize the instruction, and employers are, therefore, urged to provide the instruction themselves as part of the technical training of their hands.

## Commission and Court News

### Interstate Commerce Commission

The Commission has suspended to February 2 proposed rules requiring prepayment of freight on cotton to points in Canada as published in a supplement to Agent P. A. Leland's I. C. C. No. 1334.

The commission has suspended to February 2 proposed increased rates on coal from Kentucky, Tennessee and Virginia to northern and northwestern points as published in a Louisville & Nashville tariff.

The commission has suspended to January 29 the operation of certain tariffs providing for the cancellation of joint fares from points on the Southern Pacific and San Diego & Arizona in California in connection with the Atchison, Topeka & Santa Fe, and the establishment of short line fares between California points and Chicago, via New Orleans.

The Interstate Commerce Commission has ordered investigation proceedings on account of the refusal of Ohio and Nebraska to allow for intrastate traffic the full percentages of increase in rates allowed for interstate traffic. Hearings will be held before Attorney-Examiner Disque at Columbus, Ohio, on October 20 and at Lincoln, Nebraska, on October 25.

Attorneys for the transcontinental railroads have filed with the Commission a brief of exceptions to the recent report of Examiner W. A. Disque in the transcontinental rate case. They argue that the record does not warrant a finding that the present basis for constructing through class rates, from official classification territory to the destinations named in Idaho, Montana, Utah, Wyoming and New Mexico, is in any respect in violation of the interstate commerce act and that the rates proposed by the examiner are unduly low.

The commission has issued an order in the tap line case providing that from the effective date of the increased rates authorized in the general rate advance case, the switching charges or divisions which may be paid to tap lines, parties to the tap line case, by the trunk lines, out of the rates on interstate shipments of lumber and forest products from points on the tap lines to the various groups defined in the tap line report, shall not exceed the following:

For one mile or less from the junction, \$3.30 a car; one mile to three miles, \$4.50; over three miles and not over 10 miles, 3 cents per 100 lb.; 10 miles to 20 miles, 4 cents per 100 lb.; 20 miles to 40 miles, 5 cents per 100 lb.; over 40 miles from the junction, 6 cents. These divisions are to be the net amounts that may be paid out of the trunk line rates from the junction, and when the rates from points on the tap lines are made by the addition of an arbitrary, the amount of such arbitrary shall accrue to the tap line.

### Court News

The district court at Duluth, Minn., recently held the director general of railroads liable for damages for a fire which swept through Cloquet, Minn., on October 12, 1918, an account of which appeared in the *Railway Age* of October 25, 1918 (page 726). The decision is the outcome of a test case heard before five judges of the district court as to whether or not the Cloquet fire had its origin in a fire alleged to have started on the right-of-way of the Great Northern. This test case was finally agreed upon by counsel for the director general and the plaintiff, inasmuch as there were several hundred cases involving losses in the city of Cloquet alone. As the decision of the judges was in favor of the plaintiff, it is understood that counsel for the director general will move to have the finding of fact changed, and if it is not changed, it is expected that the record will be submitted to the Supreme Court of the state.



## Foreign Railway News

### Freight Handled by Contract at Tampico

A contract to handle all its freight at the Tampico, Mexico, terminal has been awarded by the National Railways of Mexico to E. M. Rowley & Co., a stevedoring concern of that city. All the railway's freight handling equipment has been turned over to the contractors and new equipment to the value of \$200,000 has been ordered.

### Germany Re-Establishing

#### International Transit Construction

BERLIN, Sept. 5.

Germany is again taking up its international transit connections which were cut off during war time. Up to now Germany has direct connection with the following cities in former enemy countries, Berlin-Rome, Berlin-Brussels, Berlin-Paris, Berlin-London (via Olissingen and Folkestone) and Berlin-Milan.

### Railway to Connect Salvador With Atlantic

The construction of a railway connecting central Guatemala with Salvador, which was postponed during the war, is about to be undertaken again. This line will connect with the railway which runs from Barrios, on the Atlantic, to San Jose, on the Pacific, and will give Salvador direct rail communication with an Atlantic port. The new line will be 157 miles long and will cost between \$7,000,000 and \$8,000,000. About three years will be required to complete the work.

### Belgian Railways Approach Normal Again

Belgian railways are steadily being restored to normal, according to a report received at Washington this week from Trade Commissioner Samuel H. Cross at Brussels. Several of the lines put out of commission by the war have been completely restored. The repair shops report their efficiency at 50 per cent of that of the pre-war days. A premium system for enginemmen to encourage economy in repairs and fuel consumption is reported to be producing favorable results.

### Proposed Electrification of Highland Railway

LONDON.

An announcement has just been issued regarding the proposed electrification of the Highland Railway (Scotland) from Perth to Inverness. The scheme in question would utilize the powers available at Loch Erich, Loch Laidon, Loch Rannoch and Loch Tummel, and is estimated to cost about £1,500,000 (approximately \$6,000,000) and to yield about 42,000 h.p. A definite announcement as to the intentions of the Highland Railway Board or of the Ministry of Transport is expected to be made shortly.

### A Clash of Unions

LONDON.

As an example of the jealousy of trade unions in England may be mentioned the following news item in the London Times:

"Two hundred blacksmiths employed in the Glasgow & South-Western Railway works at Kilmarnock and Barassie struck on Saturday, owing to the refusal of a hammerman to join the craft union. The National Union of Railwaymen, to which the man belonged, has threatened to call a strike on the system if the man is not allowed to work as a member of the N. U. R. only."

### Free Services on English Railways

LONDON.

A strong protest has been made on the part of the commercial interests in Great Britain at the proposed withdrawal from the free category of certain services which heretofore have been rendered by railways in connection with freight traffic. The Railway Rates Advisory Committee intends recommending that where services have been given without payment, a charge be made in the future, and that, where a nominal charge has been imposed, this charge be increased. Strong action against this

proposal is being taken by the Federation of British Industries, which is supported by other important bodies including chambers of commerce and the Mining Association.

### Russia Contracting With German

#### Locomotive Manufacturers

LONDON.

It is stated in the Dagens Nyheter that the Russian representative, Professor Lomonosov, recently visited Berlin, where he made a contract with the Locomotive Manufacturers' Trust for the delivery of 1,500 locomotives within one year. It is stated that the Saxon Engineering Company, formerly Richard Hartmann & Co., of Chemnitz, has received an order for some of these locomotives to the value of 30,000,000 marks (approximately \$500,000).

### Proposed Construction of a French

#### Locomotive Plant in Yugoslavia

Consul K. S. Patton reports from Belgrade, under date of August 26, 1920, that three French engineers, representing important French industrial concerns, have proposed to the Jugoslav government a project by which their concerns would found in Yugoslavia several railway branch factories, which would manufacture locomotives, freight cars, and other railway rolling material. The output of the factories would be used in Yugoslavia, as well as on the French railways in the Near East, such as Asia Minor, Syria, etc., and for French exportation by the French concerns in the neighboring Orient.

### Prices for Railway Material in England

LONDON.

It is reported in the Great Western Railway magazine that the prices that company is now paying for different classes of material is as follows:

	1920				1914			
	£	s.	d.	\$	£	s.	d.	\$
Locomotive coal .....	23	36	5	7.30	6	12	0	2.40
Steel rails (per ton).....	23	0	0	92.00	6	15	0	27.00
Rail chairs .....	14	0	0	56.00	5	0	0	20.00
Chair bolts .....	50	10	0	202.00	17	10	0	70.00
Boiler plates .....	29	10	0	118.00	9	0	0	36.00
Steel (per ton).....	38	0	0	152.00	9	10	0	38.00
Locomotive axles (per ton).....	45	0	0	180.00	15	0	0	60.00
Buffer springs .....	49	10	0	198.00	16	10	0	66.00
Freight car wheel tires.....	30	10	0	122.00	9	15	0	39.00
Bar iron (per ton).....	30	10	0	122.00	8	5	0	33.00
Rape oil (per ton).....	133	0	0	532.00	30	0	0	120.00
Locomotives (per ton).....	120	0	0	480.00	40	0	0	160.00
	150	0	0	600.00				

(The pound sterling in the above is considered equal to \$4.00)

### England's Exports of Railway Materials

LONDON.

According to the Board of Trade returns, the following railway material was exported during the seven months ended July 31, 1920:

	7 Months ending July 31, 1920		7 Months ending July 31, 1919	
	£	\$ (at \$4 to £)	£	\$ (at \$4 to £)
Locomotives .....	2,977,655	11,910,620	517,331	2,069,324
Rails .....	2,387,030	5,548,120	1,055,043	4,220,172
Passenger cars .....	851,270	3,205,080	249,882	999,528
Freight cars .....	3,195,889	12,783,556	646,913	2,587,652
Tires and axles.....	764,791	3,059,164	525,380	2,101,520
Rail chairs and metal sleepers .....	448,851	1,795,404	145,381	581,524
Miscellaneous permanent way material .....	1,394,349	5,577,396	475,737	1,902,948
Total permanent way ..	5,180,745	20,722,980	1,700,060	6,800,240

The quantity of rails exported during the period ending July 31, 1920, was 73,746 tons, as against 65,621 tons for the same period of 1919, and of rail chairs and sleepers 21,021 tons, as against 8,938 tons.

### Another Railroad Strike in Germany Imminent

BERLIN, Germany.

To guard German neutrality declared by the German Government in the Polish-Russian War, German railroad employees have founded a central committee with corresponding local committees provided with the power to examine all trains travelling through Germany, and to stop all trains transporting warfaring materials. These committees consist of members of the workshop committees, of members of trade unions, and finally of members of the various socialistic parties. The German railroad minister

Groener has declared his permission to have all trains near the German boundaries examined by German railroad workers or employees, but has refused to acknowledge the above-mentioned committees. This refusal has led to serious difficulties. In case the railroad employees should deem it necessary to strike, German organized labor has declared to grant every help necessary, or, in other words, if necessary, German organized labor is willing to join in the proposed strike. The situation is all the more serious as various railroad authorities are taking steps against workshop committees and refusing to acknowledge their rights.

### Japanese Seek Monopoly of Chinese Eastern

That the Japanese are trying to monopolize the Chinese Eastern is the unanimous report of a commission composed of an American, an Englishman and a Frenchman, advisers of the President of China, which was sent by the Chinese government to investigate political conditions in Manchuria. The members of the commission were: J. C. Ferguson, political adviser; E. Lenox-Simpson, statistician, and M. Padoux, financial adviser. The report said that on the surface the Japanese attitude was irreproachable, but that quietly they were exerting every effort to interfere with the working of the lines and to acquire commanding positions at every point along the railway.

### English Railway Statistics

LONDON.

The railway statistics issued by the Ministry of Transport for the four weeks ended July 18, show an increase of 1,340,839 tons or 5.2 per cent in the total freight traffic as compared with the previous four weeks. The estimated receipts per ton-mile, excluding cost of collection and delivery, were as follows:

	Four weeks ended	
	July 18, 1920	June 20, 1920
General merchandise .....	2.486 pence	2.561 pence
Coal, coke and patent fuel.....	0.870 pence	0.925 pence
Other minerals .....	1.078 pence	1.122 pence
Total freight .....	1.444 pence	1.517 pence

Note: 1 penny equals 2 cents.

The passenger train mileage run during the four weeks ended July 18, 1920, was 609,968 miles in excess of the previous four weeks. The average freight carload increased from 5.40 tons to 5.47 tons, the trainload from 132.84 to 134.33 tons, and the train-miles per engine-hour from 3.30 to 3.31. The net ton-miles worked per engine-hour, namely, 444.70, are in excess of those of any previous period in the current year.

### Receipts and Expenditures on English Railways

LONDON.

The Ministry of Transport has recently issued a statement showing the financial results of the working of the railways during the four months ending July 31, 1920. The total revenue earned is £81,178,629 (approximately \$324,714,516 at the present rate of exchange). The total expenditure was £77,993,264 (or approximately \$311,973,056), giving a balance of revenue earned over expenditure of £3,185,365 (or \$12,741,460). The standard year proportion of net receipts under the given guarantee was £15,828,000 (or \$63,312,000), to which is added for interest on capital works brought into use £369,000 (or \$1,476,000). Thus the net government liability for the four months ending July 31, 1920, is £13,515,677 (or \$54,062,708).

The traffic revenue earned was distributed roughly as follows:

Passenger train traffic.....	£39,829,584 or \$159,318,336
Goods train traffic.....	44,875,442 or 179,501,768

The report also shows a charge of £11,707,097 (or \$46,828,388) for maintenance and renewal of way and works and a charge of £15,131,103 (or \$60,524,412) for maintenance and renewal of rolling stock.

### New Zealand Railway Electrification

According to an announcement appearing in Engineering, London, the British trade commissioner at Wellington, New Zealand, has recently cabled to the Department of Overseas Trade the award of a contract to the English Electric Company for the electrification of a section of the Midland Railway of New Zealand. The section to be electrified is known as "Arthur's Pass." It is the connecting link between the government railway system of the east coast and west coast of South Island. At present

the whole of the railways in New Zealand are steam operated, and it is not proposed at present to electrify more than the section covered by this contract. The section to be electrified includes a tunnel over 5 miles long and three steel bridges. A great portion of the section is on a grade of 3 per cent and the summit is about 2,400 ft. above sea level. The contract includes the provision of the power plant, the tunnel lighting installation, the overhead transmission line and the complete equipment for the electrical operation of the section of the railway referred to. The system to be used is 1,500 volts direct current overhead contact. The power-house must be at Otira station, which is 1,260 ft. above sea level, and the power will be generated by geared turbine direct-current sets. The boilers, it is proposed, should be operated on dust fuel in order to utilize the product of a number of local coal mines which is too fine for ordinary consumption.

### Air Brakes on Swedish Railways

It is now announced that the "Kunze-Knorr air brake," a German invention, with which the rolling stock of the State Railways in Sweden are to be equipped, will involve an expenditure of no less than 30,000,000 crowns, which at normal rate of exchange represents \$8,150,134.

The railway officers estimate the annual saving from the use of this particular air brake at 5,500,000 crowns, or \$1,474,530 at normal exchange, and this because of the consequent reduction in the number of railway employees. These Kunze-Knorr air brakes are to be made in Sweden, Aktiebolaget Nordiska Armaturfabrikerna, at Lund, having made a contract with the German company to manufacture them.

The Swedish private railroads have been reluctant to adopt air brakes, but it is probable that sooner or later they will follow in the footsteps of the State Railways. It would, therefore, be well, says Consul General Dominic I. Murphy, who sends the above information to Commerce Reports, for American manufacturers of air brakes to get in touch with the private railroad companies in Sweden, as it is quite certain that the German company cannot undertake to equip them at least for a year or two.

### Railroad Extension in Morocco

Reports have been received from Paris, says Commerce Reports, that a convention has been concluded between the Moroccan Protectorate and a group consisting of the Paris-Lyons-Mediterranean and the Paris-Orleans railroads, the Compagnie Générale of Morocco, and the Compagnie Marocaine for the construction of a railroad with standard gage. The share capital of this group will consist of 50,000,000 francs (\$9,500,000 at par value). The cost of constructing the six lines contemplated is estimated at 970,000,000 francs (\$184,300,000). Its share in the scheme is to be 70 per cent of the first 300,000,000 francs (\$57,000,000) and 10 per cent of the remainder. The line from Fez to the Algerian frontier is excepted from this arrangement, as its construction will be particularly difficult, owing to the nature of the soil traversed. The Sherrefian government has provided a special grant of 120,000,000 francs (\$22,800,000). In addition to this measure, Parliament has approved the floating of a Moroccan loan of 744,140,000 francs (\$141,386,600). This loan has no connection with the railroad scheme, but is to be used for purposes of social and economic improvement. The expenditure is to extend over 12 years.

### Improved Conditions for Women

#### and Girl Railway Clerks

LONDON.

An agreement has recently been signed by the Committee of General Managers of the English Railways, acting for the Ministry of Transport, providing for improved conditions of service for all women and girl clerks on the railways. The agreement operates as from August 1, 1919, and payment for the arrears of pay from that date will be made. It provides for three scales of pay, the lowest having a maximum of 60 shillings (approximately \$12) at the age of 31 for clerks performing routine work. Clerks in the second class will rise to a maximum of 70 shillings (\$14) after four years' service. For those performing duties of more than ordinary importance there is no fixed maximum, but the minimum



is above 70 shillings and the rates will be determined by the nature of the duties performed.

In addition to the foregoing, a "cost of living bonus" will be paid to the women and girl clerks at the rate of 1 shilling and 6 pence (approximately 30 cents) for every five points above the standard of 125 per cent over the normal figures of 1914. The payment of this bonus operates in accordance with the cost of living figures from April 1, 1920. The agreement also covers payment for overtime and Sunday duty, and makes new arrangements for holidays. It is estimated to affect something over 10,000 women and girl clerks.

### The Plight of Russian Railways

LONDON.

An article in the Times Engineering Supplement by Allan Monkhouse, A. M. I. E. E., gives an indication of the sad plight of the Russian railway transport system. Moscow, the center of many great industries, is practically isolated from the oilfields of the Caucasus, the coal mines of the Donetz basin, the cotton fields of Turkestan and the vast mineral resources of the Ural Mountains. Petrograd, which in the past received its supplies of fuel and raw material either by sea from other countries or by one of the great trunk railways from the south, is even worse off, and Tula, Harkov, Ekaterinoslan and the isolated manufacturing towns on the Volga and its tributaries and in the Urals are in the same plight.

It is an irony of fate that the Bolsheviks themselves destroyed the organization which might have enabled Russia successfully to reconstruct her railways, once the exhausting stress of the war with Germany was removed. In 1917, and 1918, the Bolsheviks removed the technical administration of the workshops and traffic staffs and substituted their own committees. Within a year they realized their error and recalled these men, but in the meantime the majority had suffered the fate of thousands of their class and had either died or fled.

Contrary to the general idea prevailing, Russia has the resources to effect reconstruction if only she had the technical staff and could get the workpeople back into the workshops. The whole of the lines were equipped and run with Russian personnel. The locomotives and rolling stock were, up to the outbreak of war, of entirely Russian manufacture. Imperial laws made it imperative that contracts for railway materials and machinery should be let to Russian firms; thus it was that from 1895 onwards enormous works were developed in Russia to supply the country's needs for railway material.

### South African Experience with

#### Narrow Gauge Railways

LONDON.

An article in the Times Engineering Supplement states that considerable experience has been acquired in South Africa with regard to the operation of narrow-gauge feeder lines. The narrow-gauge lines of South Africa are 2-ft. and 2-ft. 6-in. gauge. There are just under 700 miles of narrow-gauge lines in operation (exclusive of lines in the Southwest Africa Protectorate), representing about 7 per cent of the total mileage of the Union of South Africa. The lines vary in length from 177 miles long to short lines of about 25 miles.

Sir William Hoy, the general manager of the South African Railways, in the course of an analysis of the advantages and the disadvantages of narrow-gauge feeders, which was recently published in the South African Journal of Industries, has little to say in favor of narrow-gauge lines. He states that while the first cost in a great many cases is cheaper, there are many objections with regard to the operating side. These are, he points out, the impossibility of pooling rolling stock between the narrow-gauge line and the main line, which is laid to a gauge of 3-ft. 6-in., inability to use old main line engines and rolling stock on narrow-gauge feeders, the necessity for providing repair shops and engine sheds for each narrow-gauge line, the expense and delays occasioned by trans-shipment at junctions, and the impossibility of through running of trains. He is, however, not opposed to the construction of short narrow-gauge lines in cases where they are never likely to be extended to link up with another main line, but these lines should be laid and worked as tramways rather than light railways. The track should be of 20-lb. rails and no stations or staffs should be provided other than the driver of the train, who, with the assistance of one or two native workmen, can attend to the entire operation of the line. The residents of the district

served should themselves load and unload freight in trucks.

Taking seven narrow-gauge lines, aggregating 472 miles in length, the average capital cost per mile was £3,619 (or approximately \$17,600), ranging from £793 (\$3,850) to £3,966 (\$19,300). The average cost for 13 light standard 3-ft. 6-in. gauge branches, aggregating 648 miles, was £5,177 (or approximately \$25,200) per mile. Of these the cheapest cost £3,155 per mile (approximately \$15,300), which is considerably less than the most expensive narrow gauge, but as the standard-gauge line in question runs through comparatively flat country and the narrow-gauge line traverses much more broken ground, the two cases are hardly comparable.

With regard to the relative cost of operation, the average working expenditure (including depreciation and interest charges at 3½ per cent) for the seven narrow-gauge lines was 4.30 pence (or 8.4 cents) per ton mile, while for the 13 standard gauge lines the cost was 3.40 pence (or 6.8 cents). On the other hand the average cost per train mile was 6 shillings 8 pence (or \$1.60) and 7 shillings 7 pence (\$1.82), respectively. From these figures it will be seen that while the cost of running a narrow-gauge train was slightly lower than that of a standard-gauge train, the greater loads carried by the latter reduced the actual cost of working to almost one penny (2 cents) per ton mile below the amount for the narrow-gauge line.

### Electrification of Railways in South Africa

The South African Government has been for some time past considering the question of electric traction and investigating the possibility of the electrification of certain of the State owned railways of the Union, and a memorandum on this subject is among recent parliamentary papers. The continued and rapid rise in railway expenditure, together with the increased cost of coal has drawn the attention of the authorities to the advantages to be derived from the substitution of electricity as the motive power for these railways. In the early days the South African railways were built without adequate provision for the prospective growth of traffic, and certain sections must shortly be expanded to meet future requirements. With the growth of population and trade these sections have become incapable of meeting the heavy demand now made upon them and this is going on in an increasing ratio. The time has, therefore, come when electrification must be taken into account. A memorandum on this matter has been issued by the general manager of railways in the form of a white paper for the information and convenience of members of parliament, and has commended itself in responsible quarters as a clear proof of the practical and financial benefits of electric traction.

Engineers who have been consulted on the question of the electrification of the union railways have recommended that this should be carried out in the first place on certain suburban and other sections, in the Cape Peninsula, at Durban, Glencoe and Witbank, at a total cost of £15,427,382 (\$75,000,000). The railway Administration has approved of this principle, the work to be undertaken in sections and spread over a number of years. It is recommended that funds be devoted immediately to the electrification of the Capetown-Simonstown line and of that from Durban to Maritzburg, a total distance of 100 miles and that work on these two be commenced at the earliest possible date, at an estimated cost of four and a half millions sterling.

It is also recommended that some measure of unification of the various electricity undertakings throughout the country, whether municipal or private, should be adopted in the future and that power stations installed for supplying railway requirements should form part of such unified scheme. Besides representing an exhaustive and constructive criticism of the report of the consulting engineers which has already been laid on the tables of both houses of parliament, the memorandum indicates the extent to which other countries have, with advantage, adopted the system of electric traction. From the views expressed in the report of the engineers, as well as in the memorandum by the general manager, the railway board can see no reason why, if this system of traction were applied, as suggested, to the South African railways, the results should not be similarly advantageous. Indeed, the arguments in favor of its application are so convincing, and the advantages, financial and otherwise, to be derived thereby so considerable, that the board has no hesitation in recommending for favorable consideration at the hands of the government that what is advocated by the general manager in his memorandum should be carried out.

## Equipment and Supplies

### Locomotives

THE MANILA RAILROAD has ordered 10 Mogul type locomotives from the H. K. Porter Company.

THE CHICAGO & NORTH WESTERN is having repairs made to a number of locomotives at the plant of the Manitowoc Ship Building Company, Manitowoc, Wis.

THE WESTERN MARYLAND has ordered 20 Consolidation locomotives from the Baldwin Locomotive Works. This is in addition to the 20 ordered from the same builder and reported in the *Railway Age* of September 24.

### Freight Cars

THE WABASH RAILWAY is in the market for 10 box cars.

THE BALTIMORE & OHIO is getting prices on 200 additional box car bodies.

THE GREAT SOUTHERN LUMBER COMPANY, Bogalusa, La., is inquiring for 50 freight cars.

THE PITTSBURGH & LAKE ERIE is having 1,000 hopper car bodies rebuilt at the Newcastle, Pa., shops of the Standard Steel Car Company.

THE UNITED FRUIT COMPANY, Pier 9, North River, New York, is inquiring for 100 flat cars, for use on the Truxillo Railroad, Honduras.

THE AMERICAN RAILWAY EQUIPMENT COMPANY, Philadelphia, Pa., is in the market for 100 flat cars with steel underframe, 250 box cars and 175 steel gondola cars.

THE CLARKSON COAL MINING COMPANY, Cleveland, Ohio, has ordered 500 composite hopper cars, of 55 tons' capacity, from the Haskell & Barker Car Company.

THE WESTMORELAND COAL COMPANY, Philadelphia, Pa., has ordered 100 new 55-ton steel hopper cars from the American Railway Equipment Company, Philadelphia.

THE GREAT NORTHERN, reported in the *Railway Age* of September 24 as inquiring for 400 refrigerator cars, is now asking for 500, 30-ton and 500, 40-ton refrigerator cars.

THE WEST INDIA SUGAR FINANCE CORPORATION, 129 Front street, New York, is inquiring for 250 three-compartment cane cars, of 20 tons' capacity, for export to San Domingo.

THE DELAWARE, LACKAWANNA & WESTERN, reported in the *Railway Age* of September 10 as inquiring for 20 caboose cars, has ordered this equipment from the Mount Vernon Car Manufacturing Company.

THE UNITED FRUIT COMPANY, New York, has ordered 25 ballast cars from the Koppel Industrial Car & Equipment Company, and 30 ballast cars from the American Car & Foundry Company. All these cars are to be of 30 tons capacity.

THE UNION RAILROAD, reported in the *Railway Age* of September 24 as about to convert 450 high-side all-steel 50-ton capacity cars to lowside gondolas, is having the repairs to 200 of these cars made at the works of the Koppel Industrial Car & Equipment Company.

THE GULF COAST LINES, reported in the *Railway Age* of October 1 as having withdrawn its inquiry for 1,000 cars, have ordered 500 box cars and 50 tank cars from the American Car & Foundry Company, and 400 gondola cars from the Mount Vernon Car Manufacturing Company. Financial negotiations now pending must be completed before these orders will be carried out.

## Supply Trade News

The American Steam Conveyor Corporation, Chicago, announces that a change has been made in the corporate name to **Conveyors Corporation of America**. There is no change either in the personnel or policy of the company.

The Lancaster Steel Products Corporation, Lancaster, Pa., recently opened a New York office in the National Association building, 25 West Forty-third street. The office is in charge of **L. E. Vesey**, as district sales manager. Mr. Vesey, for the past year and a half, has been in the Chicago office of this company.

The T. J. Moss Tie Company, St. Louis, Mo., contemplates the construction of a tie treating plant on property recently purchased at the Valley Junction yards of the Terminal Railroad Association at East St. Louis, Ill. This company will also build a tie treating plant at Granville, Wis., 10 miles north of Milwaukee.

**A. E. Harrold** has been appointed manager of railway sales of the **Willard Storage Battery Company**, with headquarters at Cleveland, Ohio. Mr. Harrold was born on February 19,



A. E. Harrold

1883, and he is a graduate of the electrical engineering course of Pennsylvania State College. From 1907 to 1908 he served as assistant instructor at the Massachusetts Institute of Technology, and then for three years as director of the testing section of the National Lamp Works of the General Electric Company. From 1911 to 1914 he was electrical engineer of the Wood & Spencer Engineering Company, Cleveland, and since 1914 has been employed by the Willard Storage Battery Company as manager

of its stationary battery department.

The Wholesale Equipment & Supply Company, has been established in the Farmers Bank building, Pittsburgh, Pa., by **D. R. Sterrett** of Pittsburgh and **S. F. McLeod**, who was formerly purchasing agent for the Duluth, Missabe & Northern. This firm acts as sales agent for a line of mine and mill equipment and supplies, including heavy duty lathes, milling machines, planers, power and drill presses, lumber, wood and metal pattern, etc.

**R. A. Bull**, vice-president of the Duquesne Steel Foundry Company and formerly president of the American Foundrymen's Association, has resigned to become consulting metallurgist for the Electric Steel Company, Chicago; Fort Pitt Steel Castings Company, McKeesport, Pa.; Isaac G. Johnson Company, Spuyten Duyvil, N. Y.; Lebanon Steel Foundry Company, Lebanon, Pa.; Michigan Steel Castings Company, Milwaukee, Wis.; and the Sivyer Steel Castings Company, Milwaukee, Wis.

The Safety Car Heating & Lighting Company and the Pintsch Compressing Company have removed their sales service, treasury and engineering departments from 2 Rector street, New York, and the purchasing, accounting and manufacturing departments from Jersey City, N. J., to their new plant at the corner of Dixwell and Putnam avenues, New



Haven, Conn. The executive offices and sales office for the northeastern district will be located at 2 Rector street, New York, as heretofore.

An arrangement has been made whereby the **General Electric Company**, Schenectady, N. Y., has acquired a substantial interest in the **Locke Insulator Corporation**, Baltimore, Md., and the present directors of the corporation are: **G. E. Emmons**, **C. W. Appleton**, **D. R. Bullen**, **J. W. Upp**, **George P. Baldwin**, **C. J. Symington**, **Walter T. Goddard**, **Donald Symington**, president, **John F. Symington**, vice-president, and **F. H. Reagan**, vice-president. The treasurer is **W. G. Hoffman, Jr.**, and the secretary is **J. F. Douty, Jr.** This arrangement will result in full engineering and research co-operation between the two companies with respect to insulator problems and will further extend the usefulness of the Locke Insulator Corporation in the electrical field. The Locke company will now produce the well-known Hewlett high tension transmission insulator, using its new plant at Baltimore, Md. Such engineering and research co-operation is desirable, for prior to this time insulation improvements and developments have had great difficulty in keeping pace with the rapidly changing electrical art.

## Trade Publications

**KEEP THE GUESSWORK OUT OF WELDING.**—The American Welding Society, Chicago, an organization of manufacturers and users of welding apparatus, has issued a small booklet outlining the objects of that organization in raising the standards of welding practice. The booklet also contains the constitution and by-laws of the association.

**MILL BUILDINGS.**—The National Lumber Manufacturers' Association, Chicago, is issuing a new series of technical bulletins prepared by its engineering bureau. These are prepared in loose-leaf form in sheets 8½ in. by 11 in., and the initial issue, which has just been released, covers mill building construction, including such matter as design, cost, kind of timber, specifications and details of construction.

**TYPE "B" ERIE SHOVELS.**—The Ball Engine Company, Erie, Pa., has recently issued Bulletin S-16, 24 pages, illustrated, devoted to a description of the type "B" steam shovel manufactured by that company. The photographs show the various sizes of this type shovel operating under a wide variety of conditions, and also how it may easily be converted for crane service. The data is complete, giving sizes, capacities and results obtained in different classes of service.

**PRIVATE CONTROL PERMANENT.**—The operating genius of American railroad men is reacting to the mighty task ahead of them in a way which ought to reassure the skeptics over the permanency of private control.—*Baltimore Sun*.

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The Spencer Glacier on the Seward Division of the Alaskan Government Railway

## Railway Construction

**ATCHISON, TOPEKA & SANTA FE.**—A contract has been let by this company to J. E. Nelson & Sons, Chicago, to construct a machine shop at Albuquerque, N. Mex., to cost approximately \$1,250,000. This shop will be the central structure of a group of six other buildings to be constructed later. This building will have 24 exterior walls of steel and glass construction, a composition roof and a mastic floor. There will be 26 engine pits. It is to be heated by a fan system placed in the upper structure. Altogether, 3,640 tons of steel will go into the building.

**ATLANTIC COAST LINE.**—This company has resumed construction on its line from Goodno, Fla., to Immokalee, a distance of 26 miles. All the work will be done by the company's own construction forces. The terminus of this line, Immokalee, is in the northern Everglades in undeveloped timber country.

**CHICAGO & ALTON.**—This company has awarded a contract to Ed. Page, Marshall, Mo., for the construction of a frame passenger and freight station at Grain Valley, Mo.

**CHICAGO, ROCK ISLAND & PACIFIC.**—This company has awarded a contract to the T. S. Leake Construction Company, Chicago, for the remodeling of the main freight house at Rock Island, Ill., to provide larger warehouse facilities.

**CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.**—This company has let a contract to the Ogle Construction Company, Chicago, for the construction of a 150-ton frame coaling station at Clayton, Wis.

**GRAND TRUNK.**—Work will be started early this month on the construction of a two-story building, for the use of the Canadian Express Company, at Stuart street, Hamilton, Ontario. The building will be of brick construction on a concrete foundation and will cost about \$25,000. The work will be carried out by the company's forces.

**ILLINOIS CENTRAL.**—Construction has started on a third track from Peotone, Ill., to Tucker, a distance of 13 miles, which is estimated to cost approximately \$475,000.

**MIDLAND VALLEY.**—This company has awarded a contract to the Ogle Construction Company, Chicago, for the construction of a 100-ton frame coaling station at Pawhuska, Okla.

**PENNSYLVANIA LINES.**—Negotiations are under way between the city of Akron, Ohio, and the Pennsylvania, the Erie and the Baltimore & Ohio, for the separation of grades in Akron. The original estimate made in 1916 called for an expenditure of \$3,000,000, of which the city was to pay one-third and the railroads the remainder. Officers of the Pennsylvania, who are now engaged in designing the proposed work, now contemplate an expenditure of approximately \$5,000,000. Preliminary plans for the project have been agreed upon by the parties concerned, and surveys are now being made. It is expected that construction will be undertaken early in 1921.

**SANTA FE-NORTHWESTERN.**—This company of which the notice of incorporation appears elsewhere in this issue, contemplates the construction of a line, extending from a connection with the Atchison, Topeka & Santa Fe at Bernalillo, N. M., northwest through Sandoval County to La Ventana, a distance of 55 miles.

**TEXAS & PACIFIC.**—This company contemplates the construction of yard tracks at Dallas, Tex., in the new industrial district north of Pacific avenue and Akard street, at a cost of approximately \$100,000. Upon the completion of this improvement and the removal of main tracks in Pacific avenue, the Texas & Pacific will be able to operate its trains around the south limits of Dallas, over a portion of a new belt line now being constructed by the Houston & Texas Central.

**UNION PACIFIC.**—A contract has been let to O. P. Chedron, Salt Lake City, Utah, for the construction of a reservoir at Leroy, Wyo.

## Railway Financial News

**BALTIMORE & OHIO.**—The Interstate Commerce Commission has approved the making of a loan of \$3,000,000 to this company to aid it in the making of additions and betterments to its way and structures.

This company has applied to the Interstate Commerce Commission for authority to issue \$7,586,000 of refunding and general mortgage, Series B, 6 per cent bonds, the proceeds to be used in reimbursement of sums expended for extensions and improvements and for the retirement of maturities.

**BOSTON & MAINE.**—This company has been authorized by the Interstate Commerce Commission to issue, as of June 1, 1920, \$3,843,000, 10-year, 6 per cent bonds, to be designated as Series F, under the mortgage dated December 1, 1919, made to the Old Colony Trust Company and S. Parkman Shaw. The proceeds are to be used for the purpose of retiring \$3,843,000 of bonds, maturing on June 1, July 1, and October 1, 1920.

**CAROLINA, CLINCHFIELD & OHIO.**—The Interstate Commerce Commission on October 6 certified to the Treasury Department its approval of the making of a loan to this company of \$1,000,000 for the purpose of aiding the carrier in meeting its maturing indebtedness.

**CHICAGO & WESTERN INDIANA.**—The Interstate Commerce Commission has issued an order authorizing this company to issue \$7,000,000 of 15-year, 7½ per cent collateral trust sinking fund gold bonds, and to pledge \$9,800,000 of its first and refunding mortgage 5 per cent gold bonds as security for the collateral trust bonds, which are to be used for the purpose of paying or retiring the company's 1-year, 6 per cent collateral trust gold notes, payable on September 1, 1920. The company has also been authorized to issue \$1,000,000 of 15-year, 6 per cent collateral trust gold notes, and to pledge \$1,250,000 of its first and refunding mortgage, 5 per cent gold bonds as security, the proceeds to be used for the purpose of paying or retiring \$1,000,000 of 1-year, 5 per cent collateral gold notes, payable September 1. The company is also authorized to pledge \$10,500,000 of its first and refunding mortgage, 5 per cent gold bonds with the Secretary of the Treasury as security for a loan of \$8,000,000 in the United States.

**CHICAGO, ROCK ISLAND & PACIFIC.**—The Interstate Commerce Commission has authorized this company to issue \$1,000,000 of 4 per cent general mortgage gold bonds of 1988 and to pledge them with the Central Union Trust Company of New York as part security for an issue of \$1,000,000 of first and refunding mortgage 4 per cent gold bonds, the issue of which is also authorized by the commission, which are to be held in the treasury to be used as collateral for such short term loans as the company may find it necessary to make from time to time until the market for the bonds improves.

**DELAWARE, LACKAWANNA & WESTERN.**—The Interstate Commerce Commission has announced a proceeding of investigation and a hearing at Washington on October 15, before Director W. A. Colston, of its Division of Finance, on the application of this company for authority to increase its capitalization by the issuance of additional stock to the amount of its surplus.

**GRAND TRUNK.**—An issue of \$25,000,000, twenty-year, 7 per cent sinking fund gold bonds has been sold to Wm. A. Read & Co. The bonds will be dated October 1, and will mature October 1, 1940. An annual sinking fund of \$500,000 is provided to purchase bonds offered in the open market at prices up to 100 and interest.

**ILLINOIS CENTRAL.**—This company has applied to the Interstate Commerce Commission for authority to issue \$8,107,000 of equipment trust certificates, proposed to be sold to Kuhn, Loeb & Co. at a rate to cost about 7½ per cent, for the purchase of \$13,515,918 worth of equipment now being constructed. The commission has acted upon the company's application for a loan of \$4,480,000, to be used in the purchase of the equipment in connection with the proposed equipment trust.

**MIDI RAILROAD (FRANCE).**—A syndicate, headed by A. Iselin & Co., Hemphill, Noyes & Co., and Gude, Winnill & Co., will offer 50,000,000 francs, 6 per cent bonds, of the Midi Railroad of France. The bonds, redeemable by drawings not later than 1960, bear 6 per cent interest and will be offered to yield 6.35 per cent. This is an exclusive American issue, with coupons and principal payable in New York. They are exempt from all French taxes for non-residents of France and are convertible at the option of the holder at par into a French series of the same issue quoted on the Paris stock exchange. The bonds are in coupon form, in denominations of 1,000 francs, with interest payable June 1 and December 1.

The entire proceeds of the American issue of these bonds are to be used in the United States. Payment of principal and interest of the Midi Company's bonds and 10 per cent annually on its entire capital stock is secured by guarantee of the French Government.

**PITTSBURGH & LAKE ERIE.**—On application of the company the Interstate Commerce Commission has issued an amendment of its order of September 11, so as to provide that the equipment trust certificates to be issued under the agreement establishing the "Pittsburgh & Lake Erie Railroad Equipment Trust of 1920" shall bear interest at the rate of 6½ per cent instead of 7 per cent, and that they may be sold at a price which will net the applicant not less than an average of 95 per cent of par, plus accrued interest thereon, instead of 97 per cent; and that trust agreement and certificates shall be dated October 1, 1920, instead of July 15, 1920.

**PITTSBURGH & WEST VIRGINIA.**—A special meeting of stockholders will be held on November 15 in Pittsburgh to vote on the proposed acquisition of the property of the West Side Belt Railroad, the proposed increase of the company's capital stock to the extent of 74,000 shares, of which 30,000 are to be preferred and the balance common shares. Upon the acquisition of its property the West Side Belt Company will cease to exist, and its outstanding liabilities, consisting of \$379,000 of first mortgage bonds and \$1,443,000 of equipment trust notes, will become outstanding obligations of the Pittsburgh & West Virginia. The increase of \$7,400,000 in capital stock of the Pittsburgh & West Virginia is for the conversion of the acquired company's liabilities, now in possession of the former road, totaling \$1,080,000 in stock and \$6,320,000 in funds advanced. The new stock will remain in the company's treasury for future needs.

**RICHMOND, FREDERICKSBURG & POTOMAC.**—This company has been authorized by the Interstate Commerce Commission to indorse demand notes of the Richmond Terminal Railway in an amount not to exceed \$250,000, and to negotiate the notes so indorsed on a basis of interest at the rate of six per cent per annum, the proceeds arising to be used solely for the purpose of paying in part the obligations of the applicant to its employees.

**UNION TERMINAL.**—This company has applied to the Interstate Commerce Commission for authority to enter into extension agreements with the holders of its notes, aggregating \$550,000, due October 10, to make them mature October 10, 1921.

**WABASH.**—This company has been authorized by the Interstate Commerce Commission to continue the issuance of its five per cent profit-sharing preferred stock A, the aggregate amount to be issued under this authority not to exceed \$7,576,120.89, and of its common stock, the aggregate amount to be issued under this authority not to exceed \$7,576,120.89, and the exchange of the preferred stock and common stock for its five per cent convertible preferred stock B, now outstanding, in the aggregate of \$15,152,241.79 par value, the exchange to be at the rate of \$50 par value of preferred stock A, and \$50 par value of common stock for each \$100 par value of preferred stock B.

**WEST SIDE BELT.**—See Pittsburgh & West Virginia.

**WHEELING & LAKE ERIE.**—The Interstate Commerce Commission has approved the making of a loan of \$2,460,000 to this company to aid it in meeting its 1920 short-term maturities and in making additions and betterments to roadway and structures. The carrier itself is required to finance, on account of its 1920 short-term maturities, \$1,200,000.



## Railway Officers

### Executive

**H. L. Traber**, whose promotion to vice-president and general manager of the Kansas, Oklahoma & Gulf, with headquarters at Muskogee, Okla., was announced in the *Railway Age* of September 24 (page 550), was born at Kansas City, Mo., on April 27, 1880. He entered railway service in August, 1898, with the Kansas City, Fort Scott & Memphis, as a clerk in the general freight office at Kansas City, Mo. When the Kansas City, Fort Scott & Memphis was taken over by the St. Louis-San Francisco in 1901, he became export clerk in the office of the assistant general freight agent, and during the next eleven years served continuously with the 'Frisco as contracting agent and chief clerk to the commercial agent. In 1912, he was appointed commercial agent of the Missouri, Oklahoma & Gulf, and in 1919 was promoted to general freight and passenger agent, with headquarters at Muskogee, Okla. Mr. Traber was appointed vice-president and general manager of the Okmulgee Northern and the Oklahoma, Kansas & Missouri, with headquarters at Kansas City, Mo., in March, 1920, but resigned on September 1 to become traffic manager of the Kansas, Oklahoma & Gulf, the position he held at the time of his recent promotion.

**James A. McCrea**, vice-president of the Bankers' Trust Company of New York, and formerly general manager of the Long Island, has been elected vice-president of the Pennsylvania with headquarters at Pittsburgh, Pa., in charge of the Central region, succeeding R. L. O'Donnel who died recently. Mr. McCrea was born in Philadelphia in 1875. He graduated from Yale University in 1895. He began railroad work the same year at Pittsburgh as rodman in the chief engineer's office of the Pennsylvania Lines West. In 1896 he was transferred to the maintenance of the way department of the Cleveland and Pittsburgh division and in 1897 was again transferred to the Philadelphia division, Lines East. In May, 1899, he was appointed assistant engineer maintenance of way and in August of the same year was promoted to engineer maintenance of way of the lines east. In June, 1901, he returned to the western lines upon being promoted to superintendent of the Cincinnati division which position he retained until 1906. He was then appointed general superintendent of the Long Island and in 1911 became general manager, occupying the position until October, 1917, when he was appointed to the staff of Brigadier General W. W. Atterbury and assigned to France as colonel. He was awarded the Distinguished Service Medal of the United States Government and made an Officer of the French Legion of Honor for his service first as general manager and later as Deputy Director General of Transportation in the latter of which positions he had charge of the activities of the Transportation Corps in the advanced sections of the battle lines, occupied by American troops. He became vice-president of the Bankers' Trust Company after his return to the United States in 1919.

**Floyd H. Millard**, whose appointment as assistant to the president of the St. Louis Southwestern was announced in

the *Railway Age* of October 1 (page 593), was educated in the engineering school at the University of Colorado, followed by post-graduate courses at the Universities of Illinois and Colorado. He entered railroad service in the bridge designing department of the Chicago, Milwaukee & St. Paul, and in 1911 he withdrew temporarily from railroad work to accept a position as instructor of engineering at the University of Illinois. From 1913 to 1915 he was employed by the railroad commission of Wisconsin as a special investigator, with duties which included the preparation of state statistics, cost studies of individual roads and groups of roads, as well as the analysis of exhibits filed with the commission. After serving in 1915 and 1916 with the Interstate Commerce Commission and the Public Utilities Commission of New Jersey, he took up private work, being retained by the railroads in various commerce cases. In 1918 he was attached to the Statistical Bureau of the Western Lines of the United States Railroad Administration, and in April, 1919, he was appointed assistant to the director of traffic. When the roads were returned to private control he returned to the statistical bureau, with which he was connected at the time of his recent appointment.

### Financial, Legal and Accounting

**C. F. Krebs**, whose promotion to controller of the Chicago Great Western, with headquarters at Chicago, was announced in the *Railway Age* of September 24 (page 550), was born at Louisville, Ky., on October 4, 1855. He entered railroad service in March, 1873, as a telegraph operator on the Louisville, Cincinnati & Lexington (now part of the Louisville & Nashville). In May, 1874, he was employed by the Louisville, Paducah & Southwestern (which has also been consolidated with the Louisville & Nashville) as telegraph operator and assistant train despatcher at Louisville. From February, 1877, when he left the Louisville, Paducah & Southwestern, to July, 1882, he was successively telegraph operator, superintendent's clerk, clerk to the general superintendent and private secretary to the vice-president of the Louisville & Nashville. In July, 1882, he was appointed chief clerk to the general superintendent of the Chesapeake, Ohio & Southwestern and in 1884 was promoted to assistant to the vice-president of that road. In June, 1892, he was again promoted, to auditor of the Newport News & Mississippi Valley, and the Chesapeake, Ohio & Southwestern. He was appointed auditor of disbursements of the Illinois Central in July, 1897, and served continuously with this road as assistant controller and controller until January, 1911, when he was appointed auditor of the Chicago Great Western. In July, 1915, Mr. Krebs was promoted to general auditor of the Great Western, the position he held at the time of his recent promotion.

### Operating

**W. A. Jackson** has been appointed assistant superintendent of telegraph, of the Michigan Central, with headquarters at Detroit, Mich., effective Sept. 1.

**H. I. Battles** has been appointed general manager of the Peoria Railroad Terminal Company, with headquarters at Peoria, Ill., effective September 26.

**N. A. Ryan** has been appointed trainmaster of the Chicago, Milwaukee & St. Paul, with headquarters at Milwaukee, Wis., effective September 12, succeeding **C. A. Turney**, who has been assigned to other duties.

**L. L. White** has been appointed trainmaster of the Chicago and Hammond Terminal division, of the Erie, with headquarters at Hammond, Ind., effective October 1, succeeding **Thomas Eaton**, who has been assigned to other duties.

**O. M. Stevens**, supervisor of refrigerator service of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, has been appointed special assistant to the vice-president, in charge of operation, with the same headquarters, effective September 12.



J. A. McCrea

**Robert D. Hawkins**, who has been appointed general superintendent of motive power of the Atlantic Coast Line with headquarters at Wilmington, N. C., as noted in the *Railway*

*Age* of September 24 (page 552), was born on May 22, 1873, at La Fayette, Ind. He graduated from the School of Mechanical Engineering at Purdue University in 1893. He began railroad work in August, 1899, with the Great Northern as chief draftsman. Afterwards he became mechanical engineer, then general master mechanic and later assistant superintendent of motive power. He was promoted to superintendent of motive power on March 10, 1910, and retained that position until October 20, 1917,

when he entered military service and was commissioned lieutenant-colonel, being assigned to Russia with the Railway Engineers. While in Russia he was given command of the Mechanical Section of Railway Engineers under the command of Colonel Emerson. He returned to the United States on January 5, 1920, and was appointed an assistant to the president of the Great Northern, doing special work in connection with mechanical matters. He held that position until his recent appointment, effective September 15.

**Hugh W. Purvis**, who has been appointed general superintendent of the Seaboard Air Line, with headquarters at Savannah, Ga., as noted in the *Railway Age* of August 27 (page 378) was born on November 10, 1878, at Montreal, Nelson County, Va., now known as Shipman, Va. he received a high school education and studied at the University of Virginia. He began railroad work with the Norfolk & Western in 1897 as telegraph operator and agent and later became operator and yard clerk. He went to the Seaboard Air Line on August 18, 1900, as operator and yard clerk at Hamlet, N. C. In June 6, 1903, he was appointed train despatcher of the North Carolina division at Raleigh, N. C.

He became chief despatcher of the South Carolina division on July 15, 1906, with headquarters at Jacksonville, Fla., and in 1907 he returned to the North Carolina division in the same capacity. He was appointed trainmaster of the North Carolina division with headquarters at Hamlet, N. C., on October 10, 1909 and transferred to the Alabama division with headquarters at Americus, Ga., in 1912. He was promoted to superintendent of the South Carolina division in November, 1912, and retained that position until 1918, when he was appointed terminal manager of all terminals at Jacksonville, Fla., under the Railroad Administration. On July 1, 1919, he resumed his duties as superintendent of the South Carolina division and held that position until his recent appointment on August 15.

**E. Bodamer**, terminal superintendent of the Yazoo & Mississippi Valley, with headquarters at Memphis, Tenn., has



R. D. Hawkins



H. W. Purvis

been appointed trainmaster, with jurisdiction over the Memphis terminal territory of the Illinois Central, effective September 1, with the same headquarters.

**F. E. Lewis**, superintendent of the Northern division of the Chicago, Indianapolis & Louisville, with headquarters at La Fayette, Ind., has been promoted to general superintendent, with the same headquarters, effective October 1, succeeding **W. H. Fogg**, who has been appointed superintendent of the Northern division.

**T. W. Fatherson**, engineer maintenance of way on the Chicago Great Western, with headquarters at Des Moines, Iowa, has been promoted to superintendent of the Western division, with headquarters at Clarion, Iowa, succeeding **S. V. Rowland**, who has been transferred to the Northern division, with headquarters at St. Paul, Minn. Mr. Rowland succeeds **C. W. Berry**, who has resigned. The appointments are effective October 1.

**F. F. McCauley**, superintendent of the West Iowa division of the Chicago & North Western, with headquarters at Boone, Iowa, has been appointed acting superintendent of the East Iowa division, with headquarters at Belle Plaine, Iowa, succeeding **F. O'Brien**, who has been granted a leave of absence, effective October 1. **S. A. Morrison**, superintendent of the Northern Iowa division, with headquarters at Eagle Grove, Iowa, has been transferred to succeed Mr. McCauley; **G. E. Bonner**, trainmaster, with headquarters at Eagle Grove, Iowa, has been appointed acting superintendent of the Northern Iowa division, with the same headquarters, succeeding Mr. Morrison; **G. E. Cole** succeeds Mr. Bonner.

### Mechanical

**A. H. Eager**, mechanical superintendent of the Canadian National with headquarters at Winnipeg, Man., has been appointed general superintendent of rolling stock of the Canadian National and Grand Trunk Pacific, with the same headquarters, effective September 11. The office of mechanical superintendent has been abolished.

**R. C. Hempstead**, division master mechanic of the Chicago, Milwaukee & St. Paul, with headquarters at Madison, Wis., has been transferred to the Kansas City division, with headquarters at Ottumwa, Iowa, effective September 12, succeeding **C. W. Taylor**, who has been assigned to other duties. **W. C. Kenney** succeeds Mr. Hempstead.

**Charles James**, mechanical superintendent of the Hornell region of the Erie with headquarters at Hornell, N. Y., has been transferred to the Ohio region with headquarters at Youngstown, Ohio, succeeding **A. G. Trumbull**, resigned; **F. H. Murray**, shop superintendent at Susquehanna, Pa., has been appointed to succeed Mr. James and **J. Todd**, general foreman at Susquehanna, has been appointed Mr. Murray's successor, effective October 1.

**C. E. Brooks**, superintendent motive power of the Grand Trunk Pacific, with headquarters at Winnipeg, Man., has been appointed mechanical assistant of the locomotive department of the Canadian National and the Grand Trunk Pacific, with headquarters at Toronto, Ont., effective October 1. Mr. Brooks will assist **S. J. Hungerford**, vice-president, in mechanical matters and attend to other duties as assigned. **G. E. Smart**, general master car builder at Toronto, has been appointed mechanical assistant in the car department to assist Mr. Hungerford in mechanical matters also.

**James Simpson**, whose promotion to general master mechanic of the Northern Pacific lines, west of Paradise, Mont., with headquarters at Tacoma, Wash., was announced in the *Railway Age* of September 10 (page 467), was born at Shrewsbury, England, on September 26, 1859. He entered railroad service in 1879 as a machinist's apprentice in the shops of the Michigan Central at Jackson, Mich. From March, 1883, when he became a machinist at Brainerd, Minn., Mr. Simpson has been continuously in the service of the Northern Pacific. In 1885, he was transferred to Mandan, N. D., where he was employed as machinist until 1890, when he was promoted to night foreman, with headquarters at



Jamestown, N. D. Three years later he was appointed machine shop foreman at Mandan and he was later transferred to Fargo, N. D. In 1897 he was promoted to general foreman at Mandan and afterwards was transferred to Staples, Minn. In June, 1907, he was promoted to master mechanic with headquarters at Dilworth, Minn. He was transferred to Livingston, Mont., in 1912, and in October, 1918, was appointed master mechanic of the Idaho division, with headquarters at Spokane, Wash., the position he held at the time of his recent promotion.

### Engineering, Maintenance of Way and Signaling

**P. A. Phenev** has been appointed general track supervisor of the Oregon Short Line, with headquarters at Pocatello, Idaho, effective September 20.

**G. R. Smiley** has been appointed chief engineer of construction of the Louisville & Nashville, with headquarters at Louisville, Ky., effective October 1, succeeding **H. C. Williams**, who has resigned.

**C. B. Brown**, chief engineer of the Canadian National and the Grand Trunk Pacific with headquarters at Moncton, N. B., has been appointed engineering assistant to **S. J. Hungerford**, vice-president, with headquarters at Toronto, Ont.

**E. B. Cushing**, engineer of maintenance of the Southern Pacific, with headquarters at Houston, Tex., has resigned from railroad service, effective September 15. Mr. Cushing

was born on November 22, 1862, at Houston, Tex. He graduated from the Texas Military Academy and began railroad work in 1879 as chainman for Galveston, Harrisburg & San Antonio. Afterwards he served as land surveyor and assistant engineer. In 1882 he left that road, but returned in 1883 as division engineer. Later he was promoted to construction engineer and retained that position until 1887, when he went to the Gulf, Colorado & Santa Fe as office engineer and chief clerk of construction.



E. B. Cushing

tion. He became assistant engineer roadways, buildings and bridges of that road in 1888, and in 1889 resident engineer of the Southern Pacific, the Galveston, Harrisburg & San Antonio, and the Texas & New Orleans, with headquarters at Houston. He was appointed engineer maintenance of way of the Southern Pacific lines in Texas and Louisiana in 1901. He became general superintendent Southern Pacific lines in Louisiana in 1904, and in March, 1908, was appointed chief engineer of construction of the Sunset-Central system in Texas and Louisiana. He was promoted to assistant general manager in 1916, and shortly before federal control was appointed to the position from which he has just resigned. When the United States declared war on Germany he was commissioned lieutenant colonel of engineers, and served with the American Expeditionary Forces as director general of transportation. After the armistice was signed, he went to Coblenz as colonel in charge of ship and railway transportation in Holland and Belgium, including the despatch of supplies on the Rhine. He was twice cited for conspicuous service and decorated by the French Legion of Honor.

### Purchasing and Stores

**W. W. Morris**, assistant to the general purchasing agent of the Pennsylvania, with headquarters at Philadelphia, Pa., has been appointed purchasing agent of the Northwestern region of that system, with headquarters at Chicago, effective October 1. Mr. Morris succeeds **I. B. Thomas**, deceased.

### Traffic

**Allen Gould** has been appointed assistant passenger traffic manager of the Chicago & North Western, effective October 1.

**L. H. Trimble**, division freight and passenger agent on the El Paso & Southwestern, with headquarters at Tucson, Ariz., has been appointed general agent, with headquarters at Phoenix, Ariz.

**D. Crombie**, general superintendent of the Grand Trunk Pacific and the Canadian National with headquarters at Toronto, Ont., has been appointed transportation assistant to **S. J. Hungerford**, vice-president, effective October 1.

### Special

**William L. Barnes**, special assistant to the advisory committee of the American Railroad Association, who has been appointed executive manager Car Service Division with head-



W. L. Barnes

quarters at Washington, D. C., as noted in the *Railway Age* of September 17 (page 492) was born in Henderson County, Ill., on September 12, 1857. He began railroad work on March 23, 1873, as telegraph operator for the Chicago, Burlington & Quincy. Later he became agent and served until 1880 when he was appointed train despatcher and continued in that capacity until 1893 when he was promoted to trainmaster. From 1895 to 1902 he was chief train despatcher and then became superintendent of car service, retaining that position until 1906, when he was appointed superintendent of transportation. He became connected with the Car Service Commission in February, 1917; served as manager Refrigerator Department from June, 1918, until March 1, 1920; was appointed special assistant to the president of the American Railroad Association in May and special assistant to the Advisory Committee on July 1.

**W. C. Kendall**, who has been appointed manager of the railroad relations section of the Car Service Division, American Railroad Association, with office at Washington, D. C., as noted in the *Railway Age* of September 17 (page 492), was born May 22, 1877, at Pompanoosuc, Vt. He was graduated from St. Johnsbury Academy in 1895 and from Dartmouth College in 1899. For 10 years previous to 1899 he worked at various times as operator and relief agent for the Boston & Maine and he entered the service of that road permanently on August 16, 1899, as operator in the general telegraph office at Boston. He was later chief clerk in the office of the general superintendent of



W. C. Kendall

the western division, clerk in the office of the vice-president and general manager, secretary and chief clerk to the assistant general manager, chief clerk to the general superintendent

ent, and on March 1, 1912, he was appointed superintendent of transportation. In 1917 he was appointed a member of the Commission on Car Service of the American Railway Association and in 1918, when this was taken over by the Railroad Administration, he was appointed manager of the Car Service Section. On March 1, 1920, he was appointed chairman of the Commission on Car Service and on September 1, in connection with its reorganization as the Car Service Division, he was appointed manager of the railroad relations section.

**W. J. McGarry**, who has been appointed manager of the field work section of the Car Service Division, American Railroad Association, with office at Washington D. C., as noted in the *Railway Age* of September 17 (page 492), began railway service with the car service department of the Delaware, Lackawanna & Western at Scranton, Pa., and held every position in that office up to general chief clerk. In November 1, 1916, he left the Lackawanna to become superintendent of car service of the Lehigh Valley at Bethlehem, Pa., and on December 15, 1917, he was promoted to superintendent of transportation. On July 15, 1918, he was appointed assistant manager of the Car Service Section of the Railroad Administration, at Washington, and on March 1, 1920, he was appointed a member of the Commission on Car Service. Effective on September 1 his title has been changed to manager of the field work section.



W. J. McGarry

**A. G. Gutheim**, who has been appointed manager of the public relations section of the Car Service Division, American Railroad Association, with office at Washington, D. C., as noted in the *Railway Age* of September 17 (page 492), was born in 1878 at Cambridge, Mass. He entered railway service with the Fitchburg Railroad, now a part of the Boston & Maine system, in 1896. He was connected with the accounting department of that road and of the Boston & Maine until 1906, when he resigned to become a special agent of the Bureau of Corporations of the United States Department of Commerce and Labor. He was then chief clerk in the general accounting office and had just been promoted to traveling auditor. He had studied law and been admitted to the Massachusetts bar and for a time had practiced law. On October 1, 1908, he went to the Interstate Commerce Commission as an examiner of accounts and later became special agent, assistant chief of the Division of Inquiry, attorney for the commission in several investigations, attorney-examiner, and in connection with work for the commission acted as special United States attorney in different districts on numerous occasions. In July, 1917, Mr. Gutheim was appointed a member of the Division of Car Service of the Interstate Commerce Commission and in 1918, after the



A. G. Gutheim

organization of the Railroad Administration, was appointed assistant manager of its Car Service Section. On March 1, 1920, he was appointed a member of the Commission on Car Service of the American Railroad Association, which has just been changed to the Car Service Division.

**D. E. Spangler**, who has been appointed manager of the Open Top Car Section of the Car Service Division of the American Railroad Association, with headquarters at Washington, D. C., as noted in the *Railway Age* of September 17 (page 492), was born on May 31, 1863, at Circleville, Ohio. He graduated from the Circleville High School in 1879. He then began railroad work as warehouseman and loading clerk for the Scioto Valley, now part of the Norfolk & Western. Later he served the same road in various clerical capacities. In 1880 he became telegraph operator and in February, 1882, station agent. He was promoted to train despatcher in November, 1891, and in 1897



D. E. Spangler

was appointed chief despatcher, which position he occupied for only a short time when he was promoted to trainmaster. In 1898 he became car service agent, which position he retained until 1903, when he was appointed superintendent of transportation. In 1917 he was promoted to general superintendent of transportation, with headquarters at Roanoke, Va. He served as transportation assistant to the regional director during part of federal control. He became supervisor of signals of the eastern region of the Pennsylvania, with headquarters at Williamsport, Pa., in 1919.

**L. M. Betts**, who has been appointed manager of the closed car section of the Car Service Division, American Railroad Association, with office at Washington, D. C., as noted in the *Railway Age* of September 17 (page 492), entered railroad service in 1900 as stenographer to the chief engineer of the Chicago & Western Indiana and Belt Railway of Chicago. He later occupied the same position in the operating department, advancing to chief clerk to the general superintendent and general manager. In 1911 he was appointed car accountant of the Belt Railway. In February, 1918, he was appointed supervisor of car service of the North Western Region, United States Railroad Administration, later becoming supervisor of transportation in the same region. In March, 1920, he was appointed assistant director of the division of transportation of the American Petroleum Institute. In May, 1920, he was appointed a member of the Commission on Car Service, delegated to represent the railroads west and north of Chicago, and put in charge of closed car distribution. In connection with the recent reorganization of the Commission on Car Service his title has been changed to that of manager of the closed car section.



L. M. Betts